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ARTES SCIENTIA VERITAS

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. VII. 1851. 1855.

PHILADELPHIA.

PRINTED FOR THE ACADEMY:

By Merrihew & Thompson, Merchant street above Fourth.

1856.

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PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

January 3d, 1854.

Mr. LEA, Vice-President, in the Chair.

Letters were read:

From Baron J. W. Von Müller, dated Brussels, Nov. 23d, 1853, transmitting the works announced this evening, and also making enquiries respecting the feasibility of establishing a Zoological Garden in Philadelphia.

From Prof. John Le Conte, of Athens, Georgia, acknowledging the receipt of his notice of election as a Correspondent.

From Mr. Isaac Lea, dated Philadelphia, Dec. 30th, 1853, returning acknowledgments for his election as a Vice-President of the Academy.

A paper was presented for publication in the Proceedings, entitled "On a new Entomostracan of the family Limnadidæ, inhabiting the Western waters. By Charles Girard." Referred to Drs. Leidy, Bridges and Ruschenberger.

A paper intended for publication in the Proceedings, entitled "On the Ancient Alluvium of the Ohio River and its Tributaries, by Alfred T. King, M. D.," was read and referred to Mr. Vaux, Mr. Lea, and Dr. Ruschenberger.

Mr. Lea exhibited to the Academy a specimen of D'Orbigny's *Acostæa guadaensis*, which he owed to the kindness of that distinguished zoologist, during Mr. Lea's visit to Paris last year. This genus he reminded the members was identical with the *Mulleria* of Ferussac, as he formerly suggested, and was afterwards satisfied to be the case on seeing the original specimen, described by Ferussac in 1823, which is now in the fine collection of Mr. Delesert in Paris. Mr. Lea stated that although the specimen figured by D'Orbigny had quite a length of stem connecting the young portion of the shell, the *Anodonta* form, with the mature portion, the *Ostrea* form, yet this was not necessarily or uniformly so. In the case of his own specimen this was very different. It happened, as is sometimes the case with the genus *Ostrea*, a dead valve was filled up by a subsequent living individual; and on close examination, there were really discovered to exist two specimens of the Anodontiform age; one on the old single valve at one end, and another on the reverse end appertaining to the living specimen, having the epidermis on it perfect. Neither of these specimens had a stem,

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On the Ancient Alluvium of the Ohio River and its Tributaries.

By ALFRED T. KING, M. D., of Greensburgh, Pa.

The Ohio River, and all its tributaries which I have examined, are bounded by an ancient alluvial deposit, rising from one to two hundred feet above the present beds of those streams, and extending from half a mile to nearly two miles in width.

In the brief description which I design to give of these deposits I shall commence with that extensive and remarkable one at the mouth of the Beaver River.

This is a beautiful and romantic stream, rising in the northern part of Beaver County, Pennsylvania. It runs nearly south, and empties into the Ohio river about thirty miles below Pittsburgh. At its mouth are two small towns, Rochester on the east and Bridgewater on the west. The town of Beaver, which is the seat of justice of Beaver county, is situated on the hill immediately above and west of Bridgewater, on an alluvial plain, two miles and a half in length, one mile, or nearly so, in width, and one hundred and thirty feet above the bed of the Ohio, stretching along the northern shore of that river. Although wells have been sunken, in different parts of the town, 128 or 130 feet, which would be about on a level with the bed of the Ohio, still no one has penetrated through this deposite. The strong probability is, therefore, that it extends many feet beneath the present bed of the river. On the opposite side of Beaver river this deposite stretches along the Ohio, about three quarters of a mile. At both extremities it is apparently transferred to the opposite side of the river, in consequence of the present curving of the stream, which causes the water to impinge against the base of those lofty hills which everywhere skirt the shores of this picturesque river. Seldom does the Ohio, or any of its numerous and mighty tributaries, flow through the centre of this ancient alluvium, for this deposite is seen every now and then on opposite shores.

On the eastern side of Beaver river this deposite is 20 or 30 feet higher than it is at the highest point on Beaver plain, which would make it there about 150 or 160 feet, above the bed of the Ohio. At the most eastern extremity the hills are composed of fine sand and loam, containing fluviatile and terrestrial shells of the genera *Anodonta*, *Unio*, *Planorbis*, *Paludina*, *Limnea* and *Helix*. Nearly the whole of the residue of this deposit at Rochester, Bridgewater and Beaver, is composed of nodules of argillaceous oxide of iron, and of rounded, polished river pebbles, from the size of gravel to the size of a man's head and upwards.

At the town of Rochester, the Pennsylvania and Ohio Railroad Company has made an extensive cut of about eighty feet through this mass of iron nodules and river pebbles. Here it exhibits symptoms of stratification. Commencing at the summit, there is first a thin seam, which composes the surface soil, of sandy loam, then loose pebbles, below which there is a seam of eight or ten feet of conglomerated pebbles cemented together with an oxide of iron. So firmly bound together are these pebbles, that the workmen, when making the cut, were obliged to blast them, and I am told that they encountered much more difficulty than they ordinarily do in more solid, compact rock. Below this is a seam of ignitable bituminous coal, about one inch and a half in thickness, extending entirely through the cut, and always preserving the same relative position. Below this coal were loose pebbles again, and so on, alternately, from the summit to the base.

Doubtless this tendency to stratification in alluvial, as well as in marine deposites, may be accounted for that streams at different periods transport different materials, but the continuous seams, and vast masses of hydrate of alumina, frequently seen in alluvial bluffs, particularly in those of the Mississippi river, and the pure crystals often seen imbedded in solid sedimentary rocks, clearly indicate the existence of chemical affinity between some of the particles of sediment, in connection with mere mechanical deposition.

Beaver river is a small stream, not larger than the Mohawk, but its scenery is exceedingly beautiful. Its calm and placid bosom reflects vividly like a

mirror the tall mountain cliffs, and the magnificently variegated scenery of the autumnal landscape. The deep gorges and dark precipitous ravines which cut transversely the lofty hills which rise like mountains on each side, and the broad alluvial plains which bound its shores, lined for miles with beautiful towns and villas, where the sound of cheerfulness and the hum of industry are everywhere heard, render the scenery exceeding interesting and picturesque.

From the mouth of this river to the town of New Brighton, a distance of about three miles, the alluvium is composed principally of pebbles, resembling those already described. Here it is about one hundred and fifty feet in depth, at the highest point, and about three quarters of a mile wide. From this point to a distance of from ten to fifteen miles above, this deposite is strewed over with immense masses of transported angular rocks, derived from the neighboring hills. These rocks are of all sizes, and, in places, very numerous, strewed about in every direction, and piled upon each other in the most irregular manner. There are several enormous piles of these quartzose rocks, or coal grit, about eight or ten miles from Rochester, lying upon the brow of a hill, which overlooks the river, and more than two hundred feet above its present bed. Some of these masses will weigh thousands of tons.

There is one which is probably *in situ*, which will measure twenty feet in height, and over one hundred feet in circumference, much shattered below, where it is grooved, rounded, and smoothed by the long continued action of running water. This rock presents a singular aspect to the observer who attempts to account for its present form, and its relative position with the river below. It is surrounded by huge but smaller masses of the same character, all exhibiting the same wearing and polishing action of running water, and piled upon each other in the wildest confusion.

I descended with Dr. Barker, of Beaver, who kindly accompanied me, this precipitous hill, along a narrow and winding path to the river below. All the way we passed over and around similar piles of rocks, and for miles above this point found a similar condition of things to exist. Most of these rocks are distinctly traceable to their parent hills, still higher up the stream.

The enormous size of some of these transported rocks, and the unequivocal evidence of the wearing action of running water upon them, indicate that they were carried by a long continued, turbulent and impetuous stream, which had been, previous to this exhibition of its maddening fury, in a comparatively quiet and placid condition, during which time the subjacent alluvial sediment, before described, was deposited. It may be proper to mention here, that in connection with these angular masses of quartzose grit, I found, not unfrequently, syenitic, granitic, porphyritic, greenstone boulders, &c., &c., which were exceedingly hard, rounded and polished, similar to the more common quartzose pebbles. The largest which I saw connected with the angular rocks would not weigh more than a few hundred pounds. But about three hundred feet above the head of little Beaver creek, a tributary of the Ohio river, and about twelve miles from the locality I am now describing, there are boulders of granite and other primary rocks lying upon the summit of a hill, which will measure thirty feet in circumference.

Indeed the hills, which here contain the enormous cannel coal vein of from fourteen to eighteen feet in thickness, are strewed over with boulders of primary rocks, and the diluvial scratches and groovings are visible in places. These hills are, in some places, 300 feet high.

At different points along Beaver river, and at heights of more than a hundred feet above its present bed, I observed convincing indications of the grooving, smoothing and polishing action of running water, on the solid sandstones of the adjacent hills. These workings were unquestionably produced by the river when it flowed over this alluvial plain.

The same kind of markings I observed in the hills which skirt the shores of the Ohio. About fifteen miles below Pittsburgh, at a place called the Narrows, I observed, at the height of more than a hundred feet above the river, the solid sandstones polished and grooved, as if channelled by the moulding instrument of a joiner, and even pot holes are worn into their sides.

Nearly the entire cities of Pittsburgh, Allegheny and Cincinnati are built upon this remarkable deposite.

From Pittsburgh to Wilkinsburg, seven miles east, it is seen stretched along the northern shore of the Monongahela river, and nearly two miles in width. To this remarkable locality I will now briefly direct attention.

Passing from Greensburgh to Pittsburgh, along the turnpike, it will be observed that the last anticlinal roll of the Allegheny chain of mountains is at Grapeville, four miles west, and the last synclinal trough, which is but imperfectly formed, is about three miles further west. From this point the beautiful undulations which are so characteristic of the Allegheny chain, die away, and the rocks assume nearly a horizontal position. Their horizontality, however, is only apparent, for they really rise, at an almost inappreciable angle, westward. From this point to within seven miles of Pittsburgh the general geological and topographical structure of the country remains nearly the same.

At the summit of the hill, which overlooks the town of Wilkinsburg, standing upon the limestone which is super-imposed upon the great Pittsburgh seam of coal, the observer beholds, more than a hundred feet beneath him, a beautiful and extensive alluvial plain, bounded on the north by hills, which separate it from the Allegheny river valley, and which contain the coal and limestone to which allusion has just been made, and on the South by the Monongahela river.

The whole of this great seam of coal and the incumbent limestone, to the depth of three hundred feet, have been swept away by a process of denudation, and their places partially supplied by an alluvial deposite over one hundred feet in thickness, and about the same height over the present bed of the Monongahela river.

As the Pennsylvania Railroad passes over this deposite I shall avail myself of the measurements which are given in one of the last annual reports of the Company.

The elevation of the Ohio river at Pittsburgh, above tide, is given at 700 feet. The elevation above tide at Wilkinsburg is 922. There would, therefore, be a difference of tidal elevation between Pittsburgh and Wilkinsburg of 222 feet. After substracting 22 feet feet for the fall of the river between these two points, we would have 200 feet for the depth of the deposite.

If we assume that the shale and limestone upon which this vast deposite reposes, and which will be presently described, are from 200 to 300 feet beneath the Pittsburgh seam of coal, we will be enabled to form some idea of the enormous denuding process, by which this river excavated its channel, and afterwards deposited upon its ancient bed, in some places, over two hundred feet of sedimentary matter. This is, of course, only an approximative estimate; but from all the data which I have been enabled to procure, the average depth may be safely assumed at from one hundred to two hundred feet.

In consequence of the great depth of this deposite at Wilkinsburg, I, at one time, conjectured that the Allegheny and Monongahela rivers met, at some antecedent period, and formed the Ohio, either at this point or at East Liberty, which are from five to seven miles East of their present junction. To satisfy myself on this curious point, I crossed the plain at Wilkinsburg, three quarters of a mile, to the base of those lofty hills which separate the two great alluvial valleys, and found that the whole region was composed of river pebbles, sand and loam, with which were mingled fluviatile and terrestrial shells.

Near the Frankstown road, which is nearly two miles in a straight line from the Monongahela river, I saw some men excavating a well. They had gone down to the depth of twenty or thirty feet, and had passed through nothing but pure river sand and pebbles, meeting occasionally only with an *Anodonta* or a *Unio*.

Near this point I crossed the dividing hills, and descended along a narrow path to the road which winds along the bank of the Allegheny river. Here I found this ancient deposite presenting nearly the same appearances, and of about equal magnitude to the one on the Monongahela side. In the neighborhood of Laurenceville it is of great breadth, and of not less than two hundred feet in hickness.

The hills which separate these two ancient alluvial valleys are a continuous chain, and of sufficient altitude to constitute an effectual barrier to the mingling of the waters of these two rivers, at any point nearer than their present confluence at the city of Pittsburgh. I observed at Rochester, New Brighton, and at different points along the Monongahela and Allegheny rivers, that this deposite reposes on a dark colored shale, sometimes passing into more compact slate. As I was descending a hill on the Frankstown road, near East Liberty, I discovered an old acquaintance, a thin stratum of calcareous rock, on which the shale reposes, and which—in contradistinction to other limestones, belonging to the coal series—I have denominated the *Atrypa*-limestone.

This is a somewhat peculiar rock, characterised by containing a vast number of small bivalve shells, belonging to the genus *Atrypa*, etc. When long exposed to the atmosphere, its external surface readily disintegrates, and presents a ragged and shaly appearance, the surface being covered with small *Atrypæ* and projecting joints of *Encrinites*.

In some localities I have found in this rock the genera *Terebratula*, *Trilobites*, *Pleurotomaria*, *Productus*, *Spirifer*, *Bellerophon*, *Euomphalus*, *Ammonite* and *Orthoceratite*. But the joints of Encrinites and the small Atrypa are the characteristic fossils, and distinguish it from all other limestones belonging to the carboniferous series. This limestone, in Westmoreland county, is seldom found more than two or three feet in thickness. But near the Ohio line I found it over ten feet, it being there a very compact and durable rock, well adapted for agricultural and other purposes. It is exposed at numerous points in Western Pennsylvania, and uniformly presents similar lithological and paleontological characters.

I mentioned, at the commencement of this paper, that this ancient alluvium was traceable everywhere along the Ohio river and its tributaries which I have examined, and doubtless along those which I have not so closely surveyed. Those tributaries to which my attention has been more particularly directed, are the Beaver, Allegheny, Monongahela, Youghiogeny, Kiskeminitas, Loyalhanna and Conemaugh rivers, etc., etc. But in the brief and necessarily imperfect delineation of these remarkable deposites, which I have attempted to give, I have confined myself to a few localities only, leaving a more extended and minute description for some future period.

It is not at all improbable that those high bluffs which bound the vast alluvial valley of the Mississippi river (which is from thirty to fifty miles in width), were deposited at the same period. Also the alluvial terraces on which the city of Cincinnati is built, the highest of which is 120 feet above the level of the Ohio river; and doubtless the natural terraces and ridges of Lake Erie and Ontario, which were so graphically delineated by Mr. Charles Whittlesey, of Cleveland, in the July No., 1850, of the American Journal of Science.

For, in all these localities, fossil teeth and other bones of the mammoth and mastodon have been found imbedded in this deposite. These animals, which were once the lords of the creation, the primates of this lower world, perished and became extinct in that last grand revolution, during which I presume these ancient sedimentary deposites were slowly and gradually elevated to their present position, and which immediately preceded the advent of man.

From the whole of this investigation my mind has been convinced that the relative position of the rivers and this ancient alluvium through which they now pass, or along whose borders their waters deeply flow, has changed since the period of deposition. But when, and in what manner, or by what cause, are questions not so readily answered as proposed.

The hypothesis of local oscillations, first proposed many years ago by Sir Charles Lyell, to account for the deposition of the Rhenish loess, will, with slight modifications, I believe, clearly explain all the phenomena connected with this post tertiary formation.

Indeed, from the numerous facts upon which this hypothesis is based, it may be regarded as an exceedingly plausible theory, if not a legitimate induction.

It has long been ascertained that various parts of the earth's surface are now, and perhaps ever have been, undergoing slow and gradual oscillatory movements.

Parts of Sweden, Norway, and the shores of the gulf of Bothnia, have been long gradually rising. Also extensive regions of South America have been undergoing a slow but gradual upheaval, during a period of many centuries. On the other hand, the gradual sinking of the coast of Greenland, for the space of more than six hundred miles, during the last 400 years, has been more incontrovertibly established by actual markings and critical examinations made by the most astute minds.

Large portions of the earth's surface have been suddenly upheaved, whilst others have as suddenly subsided.

The whole coast of Chili was suddenly elevated several feet by the earthquake of 1822, producing terrible commotion in the sea, and sending vast waves over the ocean, which doubtless transported huge masses of rocks many miles from the shore.

In 1811, an earthquake sank the town of New Madrid, on the Mississippi river, several feet beneath the waters, the vibrations of which continued three months.

Many other facts of an analogous character might be adduced, but these are sufficient to show that various parts of the crust of the earth are now undergoing oscillations, and that it is not at all improbable that the hydrographical basin of the Ohio may have undergone, at some remote period, similar movements.

First we may suppose that there was a gradual subsidence during a period, perhaps, of many centuries, of the whole hydrographical basins of the Ohio and Mississippi rivers, and even extending beyond the limits of their tributary streams. This depression of the land would necessarily lessen the fall of the waters into the Gulf of Mexico, and increase the alluvial deposite. After a certain indefinite period we can readily suppose that this process of subsidence was reversed, and the whole as gradually upheaved, until the rocks were brought to their present altitude, when the oscillation ceased.

During this slow upward movement the waters would necessarily cut their channels through the alluvial deposite, which had been thrown down during the process of subsidence.

At the commencement of this upward movement we may suppose a sudden upheaval to have occurred in Beaver county, somewhat analogous to that on the coast of Chili, in 1822, which would produce such commotion and recoil of the waters in Beaver river as to cause them to impinge, with terrific force, against the projecting rocks of the adjacent hills, rive them asunder, and pile them as they are now found, over its ancient alluvial bed.

Afterwards, the process of elevation may have been as gradual as that of the shores of the Gulf of Bothnia, which amounts only to two or three feet in a century.

In corroboration of this view I may mention, that although the rocks are nearly horizontal, yet the hills which skirt the shores of this beautiful stream are often seen cracked from the base to the summit, and the strata, in places, much disturbed.

Also, the dark, yawning gorges, and broad and deep ravines, cutting entirely through the hills, indicate, I think, that the rocks here of the ancient coal measures have undergone great disturbance since the period of their original deposition.

Notice of American Animals, formerly known, but now forgotten or lost.

By JOHN LE CONTE.

The writers of the last century have left us descriptions of several animals which modern research has not since been able to detect. In looking over the works of these authors, who favored the world with their knowledge so long ago, it necessarily happens that we find their descriptions more or less imperfect, either from the insufficient manner in which they were made, or from that brevity of expression which was then fashionable in natural science. Hence

has arisen much confusion and indecision. I have selected from these writers of a former age, the following animals which appear to have been then well known, but are now forgotten or overlooked; I beg leave to call the attention of naturalists to this subject, with the hope that they may be all found and accurately described, or else struck out from the number of those enumerated among the productions of America.

Felis rufa, or Bay Cat of Pennant, Arc. Zool., vol i. p. 51.

With yellow irids, ears erect, tufted with black long hair; color of the head, body, and outside of the legs and thighs a bright bay, obscurely marked with dusky spots; the forehead marked with black stripes, from the head to the nose; cheeks white, varied with three or four incurvated lines of black; the under and upper lip, belly, and inside of the legs and thighs white, the inside of the upper part of the fore legs crossed with two black bars; the tail short, upper part marked with dusky bars and near the end with one of black, the underside white; fur short and smooth; twice the size of a common cat, (that is 27 inches long,) said to come from the interior of New York: probably erroneous. Described by Mr. Pennant from the living animal.

The common wild cat of our country, found in all the northern, southern, and western states, has in latter years been confounded with this species; I think, however, they cannot but be distinct. Mr. Pennant, the best naturalist that England has ever produced, could never have confounded two animals so dissimilar. It is true, in describing one, he had before him the living animal, in the other a dried skin, but of the last, he could examine hundreds. He certainly could not have mistaken the indistinct brownish grey of the one for bright bay, nor could the last color have faded into the other.

The common wild cat, however, never should have been called Felis rufa, even if it was identical with Pennant's animal, as Ray had described it in his Synopsis Methodica Animalium, p. 169, as Catus montanus. If these two animals are the same, why has the name given so long even before the birth of Pennant, been discarded, in defiance of the rule of priority in nomenclature; when it was last described, it was easy to restore the name of montanus. A just regard for the name of Ray, if nothing else, surely demanded this.

A description follows of the Felis montana, as I knew it in Georgia, made from numerous specimens either living or recently killed, including probably every variation to which the animal is liable.

Felis montana. Mountain Cat, Pennant, Arc. Zool., vol. i, p. 51. Catus montanus, Ray, Synops. Method. Animalium.

Above, hair mixed dusky, and pale brown, top of the head brown striped longitudinally with dusky, cheeks with dark brown, back with dusky; the last sometimes wanting. Irids yellow, ears black, upright, and slightly pencilled, especially during the winter; with a broad, transverse, cinereous bar. Cheeks on each side with a large semicircular tuft of long hair. Legs spotted with dark brown, sides most frequently obscurely spotted with the same, sometimes, however, not spotted; chin and throat white, with a black stripe on each side, forming an angle; sometimes these stripes are wanting, or very faintly marked in pale brown. Belly, inside of the thighs, and hind part of the fore legs whitish, spotted with black. Tail, above, generally very faintly annulate with brown; these rings often disappear; tip black, beneath white, which color appears on the upper part at the tip, whenever the hair is in any way disturbed. Feet beneath dusky or dark brown.

Mean length of 12 specimens 31 inches, tail 6.

I have given the foregoing very full description, that it may be compared with the preceding. Most of the marks which are common to the two, belong to almost every species of the genus Felis. I add two obscure species, of which but little is known. I am not willing to pronounce them distinct from each other or from the montana, without farther examination. The first was seen in California by my son, and the description and measurements were made by him; the other is extracted from Lewis and Clarke's travels.

Californian Wild Cat:

Above, mottled white, black, and fuscous, lighter on the sides, which are slightly barred; beneath, white; legs fuscous, with black bars, much more distinct on the anterior ones, which are anteriorly white. Ears large, rounded, black, with a white spot connected with the mastoid part, tip with a short tuft. Tail short, blunt, barred with darker, tip black with an extreme white point.

Length 31 inches, tail 6, head 4.5, height 1.5.

Lewis and Clarke's Wild Cat:

Larger than the wild cat of the United States; color of the back, neck, and sides reddish brown, irregularly varied, with small spots of dark brown, tail two inches long and nearly white, except the extremity which is black; it terminates abruptly, as if amputated. Belly white, variegated with small black spots, legs of the same color as the sides. The back is marked transversely with black stripes; ears black, on the outer side covered with short fine hair, except at the upper part, where it is furnished with a parcel of fine, straight, black hair three-fourths of an inch long. The hair of the animal is long and fine.

This animal was called by Rafinesque, Felis fasciata. I have declined adopting his name, as he never saw it, and was too much in the habit of describing things by hearsay, with as much confidence as if he had himself procured them, and had them lying before him. A drawing or an engraving was sufficient for him to make a new genus from, as was often the case, I am sorry to say, with authors of more credit.

Both Charlevoix and Dupratz, mention a species of Felis in Louisiana, which appears not to have been lately seen; they call it Pichoux; the following is a description of it—

Pichoux:

Upper part of the head, neck, back, sides, shoulders, and thighs bright tawny, face striped downwards with black, shoulders and body marked with stripes and large oblong black spots, the legs with small spots, breast and inner side of the legs and thighs whitish, spotted with black; tail long, marked with black, tawny, and grey.

Size of a common cat, (about 18 inches).

Does not appear to be the Felis pardalis, from its smaller size, and probably different markings, besides being in some of the under parts white. If this animal is no longer found in Louisiana, it is highly probable that it may be met with in Texas or New Mexico. Animals at one time extremely common in any particular country, will suddenly leave it without any visible cause. As an instance of this: previous to the year 1820, no bird was more common in that part Georgia where I resided, than the Conurus Carolinensis or Parakeet. They would pass through the air in flocks of from 50 to 100. They suddenly all disappeared, and for more than thirty years, not one has been seen where they were so abundant. Travellers through Texas and New Mexico, would do well to look for this beautiful species of cat.

The Chat sauvage, described by Dupratz, vol. ii., p. 93, is an animal well worth enquiring about. He thus describes it:—

Chat sauvage:

He says that it does not feed on animal substances, but on fruits, bread, and other vegetables. It seems that it was easily and often tamed. It is gentle and frolicsome, and not more than 8 or 10 inches high and about 15 long. The head like that of a fox: when tamed the color is grey; when wild, red: its paws have long toes and short claws; it has improperly been called a cat, as it has nothing of the cat about it but its activity, and bears a greater resemblance to the marmot.

Silvery Fox, of Louisiana, Penn. l. c., p. 48.

With a fine and thick coat of a deep brown color, overspread with long silvery hairs of a most elegant appearance. They differ from most other American species in their habit of burrowing. The description is borrowed from Dupratz, vol. ii., p. 92.

This can hardly be the Canis velox.

Pennant in Supp. to Arctic Zoology, p. 52, mentions a whitish grey fox, no larger than a hare, common among the Archithinne Indians, 4000 skins of which have been brought in one year to the British factories.

The Comanche Dog:

Common among the Comanche Indians. Naked, except a few stiff hairs about the mouth. This dog is mentioned by Clavigero, vol. i., p. 56, as an inhabitant of Mexico, called by the natives Holoitzuicintli. It is remarkable that though some of these dogs have been brought within the United States, we have no description of them: they are quite large, being upwards of two feet high, and used by the natives for hunting. Here is an instance of the absurdity of those writers who state, that climate has an influence in altering the appearance of animals; thus they tell you that the so-called Turkish dog, which is hairless, has been made so by its progenitors living for numerous generations in a warm climate; now here we see an animal equally naked, which inhabits the mountains and cold steppes of the south-west. Of a similar character is the assertion that sheep lose their wool in the Southern States, and in the West India Islands.

The Water Rat of Pennant, l. c., p. 130.

With small eyes, ears covered with fur, teeth yellow, body covered with long black hair, mixed with a few of a rust color, belly of a deep grey.

A Mouse of Louisiana:

Mentioned by Dupratz. Not larger than Mus musculus, of a very bright bay.

These are all the mammals which I can collect, as worthy of being called imperfectly known, or rather lost to modern naturalists. I now proceed to consider the Birds.

Vultur saera: Bartram's Travels, p. 150.

The head and neck are bare of feathers nearly down to the stomach, where the feathers begin to cover the skin, and soon become long and of a soft texture, forming a ruff or tippet, in which the bird, by contracting his neck, can hide that as well as the head; the bare skin on the neck appears loose and wrinkled, which is of a very deep bright yellow color, intermixed with coral red as it approaches the yellow of the sides and fore part. The crown of the head is red; there are lobed lappets of a reddish orange color, which lie on the base of the upper mandible. But what is singular is, a large portion of the stomach hangs down on the breast of the bird, in likeness of a sack or half wallet, and seems to be a duplicature of the craw, which is naked and of a reddish flesh color, this is partly concealed by the feathers of the breast, unless when it is loaded with food, and then it appears prominent. The plumage of the bird is generally white or cream colored, except the quill feathers of the wings and two or three rows of the coverts, which are of a beautiful dark brown; the tail which is large and white, is tipt with this dark brown or black, the legs and feet are of a clear white; the irids golden; the pupil black.

The tail was used by the Seminoles as a war standard. Dupratz, vol. ii., p. 109, mentions this bird under the name of White Eagle, and says that the Indians in whose neighborhood he lived, the Natchez, used the feathers for adorning their pipe of peace.

Ferruginous Woodpecker: Pennant, l. c., p. 271.

With a dusky bill, the crown and pendant crest of a pale yellow; a crimson bar extends from the mouth along the lower part of the cheek. The cheeks,

back, and coverts of the wings are of a deep ferruginous color, lower part of the back of a pale yellow; primaries ferruginous, barred on their inner webs with black.

Sent from South Carolina to Mr. Pennant, by Dr. Garden; therefore there can be no doubt of its having been obtained near Charleston, although no one has ever seen it since. The high character of both these gentlemen forbids us to suppose that there was any deception on either side, either in sending the animal to Europe, or in its habitat.

The Florida Pheasant:

Mentioned at page 20 of Stork's introduction to John Bartram's Journal of Travels in East Florida.

I have had described to me a bird, which must have been this, as inhabiting the hummocks on the banks of St. John's River, but I never had the good fortune to meet with it.

Norton Sound Bustard, Penn. vol. iii., p. 321.

A Captain Rich informed Mr. Pennant, that at Norton's Sound, in latitude 64° 30′, he had seen great flocks of a large bird which were very shy, ran very fast, and for a considerable way before they took wing, so that he could never get one shot.

Black Ibis, Bartram's Travels, p. 148.

Black on the upper side, breast and belly white, legs and beak as white as snow. Size of Ibis alba.

Red-billed Heron, Pennant, Supp., p. 65.

With a red bill. Irids yellow, legs green, plumage white.

There are many of the smaller birds of America described by Pennant, that I am convinced are not now known, and many more that have lately been described as new species, that were well known to the English naturalist. Not being, however, sufficiently acquainted with the ornithology of our country, I cannot, without devoting too much time to the subject, determine which they are. It has all along been the custom with American naturalists, entirely to neglect everything that this illustrious man and elegant scholar has written on the subject of our animals; but it would be a labor well repaid by the thanks of every lover of science, if any one would go over his Arctic Zoology, and give us the scientific names of every thing which he has described.

There remain only a few reptiles to be added to this list: there can be no difficulty in obtaining them if they really exist, and I cannot see how any one can doubt of their existence. A very little attention on the part of persons living where they are said to be found, would soon make us acquainted with them.

Trionyx, of Bartram. Travels, p. 177.

They are flat and thin, two and a half feet in length, and eighteen inches in breadth across the back; in form resembling the sea tortoise, the whole back shell except the vertebræ or ridge, which is not at all prominent, and ribs on each side, is soft and cartilaginous, and easily reduced to a jelly when boiled; the anterior and posterior extremities of the back shell appear to be embossed with round horny warts or tubercles; the belly or nether shell is but small and cartilaginous, except a narrow cross bar connecting it at each end with the back shell, which is hard and osseous; the head is large and clubbed, of nearly an oval form, the upper mandible is however, protruded forward and truncated, somewhat resembling a swine's snout, at the extreme end of which the nostrils are placed; on each side of the base or root of this proboscis are the eyes, which are large. The upper beak is hooked and sharp like a hawk's bill; the lips and corners of the mouth large, tumid, wrinkled and barbed with long pointed warts which can be projected or contracted at pleasure, which gives the creature a frightful and disagreeable countenance.

Inhabits St. John's river, Florida.

It is a remarkable circumstance, that although this tortoise is found as it were at our very doors, no one has ever seen it since the venerable author of the pre-

ceding description noticed it in his travels. There can be no doubt of its existence in St. John's river of Florida, and that it can be obtained at any time. Although it is represented in the figure attached to the description with five claws on all the feet, this does not detract from the truth of the account. If this be an error, I attribute it to his not having made a complete drawing of it at the time when he first saw it, and afterwards having finished it from memory; from this may have resulted the error, if there is one. Although I do not see any more difficulty in a Trionyx having claws on all his toes, than in a Cistudo having three claws when it has five toes; in this case there is a subtraction, in the other an addition. It has been said that this was an incorrect and exaggerated figure of the Trionyx spiniferus (spinifer) of Lesueur. Nothing can be more absurd than this assertion. Lesueur's species has on the front part of the carapace a series of small pointed warts not easily discoverable, while Bartram's animal has larger extensible and contractile tubercles on the head and neck. I remember when it was much the custom to ridicule Mr. Bartram, and to doubt the truth of many of his relations. For my own part I must say, that having travelled in his track I have tested his accuracy, and can bear testimony to the absolute correctness of all his statements. I travelled through Florida before it was overrun by its present inhabitants, and found every thing exactly as he reported it to be when he was there, even to the locality of small and insignificant plants. Mr. Bartram was a man of unimpeached integrity and veracity, of primeval simplicity of manners and honesty unsuited to these times, when such virtues are not appreciated.

Apalone hudsonica, Rafinesque, Annals of Nature, p. 3.

Upper shell rounded-elliptical, flat, entire, soft, with a small anterior keel, yellowish with brown spots, and a circular black line near the margin. Two long oculated spots before and behind the eyes. Nose proboscidal; jaws without a bill. Lower shell anterior. Body denudated behind. Tail obtuse, mucronate, shorter than the shell. Five palmated toes to all the feet, with small claws. Length 2 to 6 inches.

Found in the Hudson river between the falls of Hadley, Glen, and Baker, and further up to the source. Called *Mud Turtle*.

Although this description was published long ago by Rafinesque, no one, that I know of, has ever thought fit to look for the animal. Now, although Rafinesque was certainly insane and apt to see and describe things which had no real existence, yet when his descriptions appear full and complete, and his localities accurately specified, it certainly is worth while to look for the objects he professes to have seen. Why do not some of our young naturalists take such things in hand? Advancing age forbids me.

The slender Lizard, Penn. Supp., p. 86.

About eight inches long, as slender as a crow-quill; head small, tail blunt and of equal thickness; body marked from head to tail with lines of pale brown and black, belly lead color; top of the nose and tail white.

Salamandra.

I once saw, and indeed had in my possession, a Triton or Salamandra, which was sent from New Orleans, of which the following is a short description. I add it in this place because it was a most extraordinary animal.

Dusky, speckled with yellowish white, and inclining to brown on the belly; everywhere except on the belly and tail covered with small warts, so as to resemble shagreen; tail blunt, with a narrow fin wrinkled longitudinally and transversely so as to appear striated and articulated. Length 5 in. .75.

The preceding are all the animals which I can find that have once been more or less particularly described, but of which at present no one knows anything. I might have added to the list many that have been described by Rafinesque, but the most of them appear in their coloring, as well as in other characteristics, so opposed to everything known of congeneric species, as to render it extremely probable that the author was laboring under some delusion when he published

them. It is well known that he was in the habit of describing things which he never saw, and in his eagerness to claim a priority in discovery, to describe the same object two or three times over under different names.

It is to be hoped that the reading of these few pages will turn the attention of naturalists in the Southern and Western States to the investigation of the few species pointed out as forgotten or lost, and that we will not remain long without knowing whether they have a real existence.

The Committee on Mr. Conrad's "Synopsis of the Genera Parapholas and Penicilla" reported in favor of publication in the Journal.

A report was read from a Committee appointed at the meeting of 3d inst., to inquire into the expediency of having an Address delivered before the Society at its Anniversary on the 21st of March next, and to nominate a suitable person to prepare such an Address, recommending the same, and nominating Wm. Parker Foulke, Esq.

The Report was adopted and the nomination confirmed.

A Report was also read and adopted from a Committee appointed at a late meeting to enquire into the expediency of assembling the members of the Academy at an Anniversary Dinner on the same day, (21st of March,) and in favor of the same.

A Resolution was also adopted, appointing a Committee of Arrangements for the occasion.

Committee, Dr. Ruschenberger, Mr. Cassin, Prof. Carson, Mr. H. C. Hanson, and Mr. Wm. P. Foulke.

ELECTION.

Lieut. D. M. Couch, U. S. A. was elected a *Correspondent.*

The Society then elected the following list of Standing Committees for 1854.

Committees for 1854.

Ethnology, John S. Phillips, B. H. Coates, M. D., J. Aitken Meigs, M. D.; *Comparative Anatomy and General Zoology*, Joseph Leidy, Edward Hallowell, John H. Brinton; *Mammalogy*, John Le Conte, James C. Fisher, Samuel W. Woodhouse; *Ornithology*, John Cassin, Edward Harris, George A. McCall; *Herpetology and Ichthyology*, Edward Hallowell, John Cassin, Gavin Watson; *Conchology*, T. A. Conrad, Thos. B. Wilson, W. S. W. Ruschenberger; *Entomology and Crustacea*, S. S. Haldeman, Wm. S. Zantzinger, Robert Bridges; *Botany*, Robert Bridges, Wm. S. Zantzinger, Elias Durand; *Palæontology*, Thomas B. Wilson, Joseph Leidy, Charles E. Smith; *Geology*, Isaac Lea, Aubrey H. Smith, J. P. Lesley; *Mineralogy*, William S. Vaux, Samuel Ashmead, John C. Trautwine; *Physics*, James C. Fisher, B. Howard Rand, Edmund Draper; *Library*, Robert Pearsall, Wm. P. Foulke, H. C. Hanson; *Proceedings*, Wm. S. Zantzinger, Joseph Leidy, W. S. W. Ruschenberger.

February 7th.

MR. LEA, Vice-President, in the Chair.

Letters were read:

From the Natural History Association of Halle, acknowledging the receipt of the Proceedings, vol. 6, No. 6, and transmitting the volume of Memoirs of that Society, announced this evening.

From the Trustees of the New York State Library, acknowledging the receipt of the Proceedings, vol. 6, No. 12.

From Mrs. M. K. Wetherill, dated Philadelphia, Feb. 1st, 1854, acknowledging the receipt of a copy of the Resolution adopted Dec. 27, 1853.

From Dr. W. P. Gibbons, Corresponding Secretary of the California Academy of Natural Sciences, dated San Francisco, Dec. 31, 1853, accompanying the botanical specimens presented this evening.

Mr. Lea read a paper entitled "Rectification of Mr. T. A. Conrad's Synopsis of the Family of Naiades of North America, published in the Proceedings of the Acad. Nat. Sciences of Philadelphia, February, 1853." Referred to Dr. Leidy, Prof. Haldeman and Dr. Wilson.

February 21st.

Vice-President BRIDGES in the Chair.

Letters were read:

From Lieut. D. M. Couch, U. S. A., dated Washington, Feb. 7th, 1854, acknowledging the receipt of his notice of election as a *Correspondent.*

From the Imperial Society of Naturalists of Moscow, dated October 6th, 1852, transmitting the numbers of the Bulletin of that Society announced this evening.

From M. Vauquelin, dated Paris, Aug. 20th, 1853, transmitting a pamphlet on the subject of certain instruments, and a new suture for the treatment of Ectropion, invented by him.

The Corresponding Secretary read from the Placer Times and Transcript, (published at San Francisco,) Jan. 14th, 1854, an extract from the Proceedings of the California Academy of Natural Sciences, claiming priority of description of viviparous fish inhabiting the Bay of San Francisco, for Dr. Wm. P. Gibbons. Dr. Gibbons proposes the generic name Holconote, and for one species H. Agassizi. For another species the California Academy proposed H. Gibbonsensis.

Dr. Le Conte presented a paper for publication in the Proceedings, entitled "Descriptions of some Coleoptera from Oregon, collected by Dr. J. G. Cooper, &c., &c.;" and also a second paper entitled "Synopsis of the Œdemeridæ of the United States;" both of which were referred to Dr. Zantzinger, Prof. Haldeman and Mr. Cooke.

February 28th.

Vice-President BRIDGES in the Chair.

The Committee on Dr. Le Conte's papers read at the meeting of 21st inst., reported in favor of publication.

Descriptions of some new Coleoptera from Oregon, collected by Dr. J. G. Cooper of the North Pacific R. R. Expedition, under Gov. J. J. Stevens.

By JOHN L. LE CONTE, M. D.

The following species were contained in a collection recently made by Dr. Cooper, and kindly placed in my hands by Prof. Baird. The total number of species collected was nearly 70; among which are specimens of Omus Dejeanii and Audouini. Among the described species, not before noticed in our territory, is Ancylochira Langii, (*Buprestis Langii*, Mann.) and among species also found on the Atlantic side of the continent, Haplochile pygmæa, Lec. (*Morio pyg.* Dej.), Clytus undulatus Say, Monohammus scutelaris Say, Hispa vittata Fabr., Eumolpus auratus Fabr., Galleruca canadensis Kirby.

This indicates, that notwithstanding the extensive collections which have been made both in California and Russian America, the Coleoptera of Western America are still comparatively unknown, and that consequently even small collections made by travellers, who have but little time to devote to science, will possess very great scientific value.

Cicindela, n. sp. The thorax of the specimen has been destroyed, and the species can therefore be made known only approximately, until the native species of the genus have been properly arranged in systematic order. The species in question seems most closely allied to C. longilabris *Say*, which it resembles exactly in its markings, but the elytra are less deeply punctured, and of a dull greenish bronze color; the apex is broadly rounded and finely serrate; the suture is armed with a minute spine. The labrum is not longer than is usual in the species of the genus, and entirely resembles in form C. 12-guttata, having only one distinct tooth at the middle; the palpi (of the female) are black; the sculpture of the head precisely as C. 12-guttata.

Platynus, a species resembling P. obsoletus (*Feronia obs.* Say,) in every respect except that the elytra are somewhat wider. I have not yet investigated this genus sufficiently to pronounce upon the value of such a difference.

Carabus oregonensis, cyaneo-niger thorace fere opaco, latitudine vix breviore minus convexo dense intricato-rugoso, antice posticeque angustato, lateribus rotundatis, angulis posticis modice productis, apice rotundatis, lateribus pone medium subreflexis, elytris thorace fere duplo latioribus subtiliter striolato-punctatis, foveis minus profundis serie triplici impressis. Long. .85.

One male found at Prairie Paso. This species is closely related to C. tædatus *Fabr.* (also found by Dr. Cooper,) but the thorax is proportionally smaller and narrower and much more densely and finely rugose; the rugosities of the head are also smaller, and the impressions less deep; the striæ of the elytra and the impressed foveæ are all less marked.

Calosoma æneseens, nigro æneus, crassiusculus, thorace latitudine plus duplo breviore, subtilius dense intricato-rugoso, basi utrinque late foveato, lateribus latius rotundatis pone medium modice reflexis angulis posticis paulo productis rotundatis, elytris thorace latioribus seriatim punctatis, foveisque æneis triplici serie impressis, interstitiis catenatim paulo elevatis, tibiis intermediis rectis. Long. .8.

Both sexes, found at Fort Vancouver. This species is very different from C. tepidum and calidum by the thorax being less rounded on the sides and the posterior angles being distinctly prolonged. To Callisthenes it approaches by its form, but the wings are large, and the outer points of the antennæ are entirely pubescent. The spaces between the foveæ of the elytra are also quite distinctly elevated.

Ancylochira adiecta, supra splendide viridiænea, dense punctata, crassiuscula, thorace latitudine fere triplo breviore, antrorsum angustato, lateribus late rotundatis cuprascentibus, late canaliculato, elytris lateribus late, sutura anguste cupreis, costis utrinque 4, scutellarique cum sutura confluente elevatis lævibus nitidis, costa altera subsuturali fere integra adiecta, interstitiis dense punctatis, apice subemarginata. Long. ·6, lat ·25.

One specimen found between Fort Vancouver and Yokolt Plain, in July. This species belongs to a group of species having the form of A. aurulenta and striata, but differs from all the others known to me by having obsolete costæ in the intervals between the four ordinary costæ, and by having an additional costa extending nearly from the apex to the base between the elevated suture and the normal first dorsal costa. The head is entirely free from hair, and is uniformly punctured; the under surface of the body is bright coppery, tinged with green, moderately punctured; the presternum is broadly impressed between the coxæ, and is not hairy.

Ancylochira lauta, supra splendide viridi-aurea, dense punctata, fronte non concava fere glabra, thorace latitudine plus duplo breviore, antrorsum angustato, lateribus late rotundatis cuprascentibus, late canaliculato, elytris lateribus late, sutura anguste cupreis, costis 4, alteraque scutellari cum sutura confluente nitidis lævibus elevatis, interstitiis dense granulato-punctatis, apice vix truncata. Long. ·58—·75.

Abundant in Oregon, whence it has been brought by Dr. Townsend, Capt. Wilkes' Expedition, Col. M'Call and Dr. Cooper. Resembles the brilliant variety of A. striata, but is distinguished by its more robust form, and by the costæ of the elytra being impunctured. A variety occurs in which the elytra have each a broad blue vitta, extending from the first to the third costa. The body beneath is coppery, somewhat hairy, and the antepectus is impressed between the coxæ; the front has a narrow somewhat smooth medial line.

Ancylochira radians, supra splendide viridi-aurea, dense punctata fronte concava, longe albo-pilosa, thorace latitudine vix duplo breviore, antrorsum angustato, lateribus late subrotundatis cuprascentibus, disco late canaliculato, elytris sutura margineque cupreis, costisque quatuor alteraque scutellari cum sutura confluente nitidis elevatis lævibus, interstitiis dense granulato-punctatis, apice subtruncata. Long. ·6, lat. ·23.

One specimen found at Fort Vancouver. It is with some hesitation that I venture to describe this species as distinct: its general form is narrower than A. lauta, and is very much that of A. striata: from the latter it differs by the somewhat concave and pilose front. The pectus is as in the other species, but is densely clothed with long white hair. The under surface is coppery golden, more densely punctured than in the preceding.

Ancylochira placida, viridi-aurea, cupreo-tincta, confertissime punctata, thorace latitudine fere duplo breviore, antrorsum subangustato, lateribus late rotundatis, postice transversim impresso, elytris vitta cuprea utrinque ornatis, striis punctatis haud distincte impressis, apice conjunctim rotundatis. Long. ·29.

Collected by the late J. K. Townsend, in Oregon, and given me by Mr. Willcox, as Phœnops placida of the Berlin museum. The form of body is more cylindrical than in the other species known to me; the pectus is not canaliculate, and the prolongation of the sternum is broader and more obtuse than in A. decora, or the other species with which I have compared it. The insect, though differing from Ancylochira in having the scutel slightly pointed behind, approaches much nearer to that genus than to Phœnops, and until a revision is made of the genera of our native Buprestidæ on more natural characters than have been hitherto employed in their study, should be suffered to remain where I have placed it.

Ellychnia facula, elongato-elliptica, atra tenuiter pubescens, thorace latitudine vix breviore, disco convexiusculo, lateribus et apice concavis reflexis punctatis, macula submarginali lunata rosea ornato, elytris dense punctulatis linea unica dorsali obsoleta utrinque notata. Long. ·32.

One specimen, Prairie Paso, differs from E. corrusca by its less dilated

form, and longer thorax, and by the presence of only one elevated line on each elytron.

Lytta Cooperi, atra, capite thoraceque læte fulvis, nitidis lævigatis, illo basi subemarginato, ante oculos nigro, hoc pentagonali, latitudine breviore, angulis lateralibus acutis, dorso deplanato, elytris lineis elevatis grosse reticulatis; antennis extus incrassatis, articulis rotundatis, tibiis posticis calcari externo longiore dilatato. Long. ·78.

Wenass river, to Fort Colville. It affords me great pleasure to dedicate this fine species to Dr. Cooper, to whose taste for natural history we are indebted for the present interesting collection.

This species belongs to group (A—b) of my synopsis of Meloides, (Proc. Acad. 6, 334,) near L. vulnerata, but is very distinct by the reticulated elytra.

Ditylus gracilis, elongatus ater, tenuiter pubescens, thorace latitudine longiore, obovato postice angustato, lateribus antice rotundatis, dense punctulato, late profunde canaliculato, disco utrinque ante medium subfoveato, elytris subtiliter granulato-punctatis, lineis 4 distinctis subelevatis. Long. ·63.

One specimen found between Fort Vancouver and Yokolt Plain, in July. Very different from the two species mentioned on p. 20, by the more slender form and elongate thorax; the dorsal channel is dilated and bifurcated towards the apex and base of the thorax.

Phymatodes æneus, æneo-piceus, parcius pubescens, thorace latitudine breviore, rotundato punctulato, antice posticeque marginato, elytris thorace paulo latioribus, nitidissimis, parce punctatis, femoribus valde clavatis, antennarum basi rufescente. Long. ·3.

One specimen found between Fort Vancouver and Yokolt Plain. Somewhat resembles in appearance P. æreus.

Asemum asperum, nigro-piceum, tenuiter pubescens, capite scabro-punctato, oculis magnis valde emarginatis, thorace latitudine breviore rotundato, punctato, medio late excavato, versus latera punctis elevatis exasperato, elytris subtiliter scabris, lineis duabus obsoletis vix distinctis. Long. ·7—·9.

Prairie Paso, July to August. This fine species seems intermediate between Criocephalus and Asemum; the eyes, although nearly as large as in the former genus, are deeply emarginate; the antennæ are hardly half as long as the body, and pubescent. The discoidal excavation of the thorax does not extend much in front of the middle.

Crossidius? hirtipes, ater, thorace confertim punctato, latitudine breviore, lateribus obtuse armatis, basi marginata, disco utrinque pone medium subfoveato, elytris confertim subtilius punctatis, fulvis, sutura basique nigro-marginatis, abdomine sanguineo, basi obscuro; subtus parcius longe pilosus, tibiis intus dense pilosis. Long. ·5

One specimen, Wenass river to Fort Colville. The palpi and antennæ are destroyed: it is possible that this should form a separate genus, but the mandibles are emarginate at tip as in Crossidius, from which it seems to differ in having the thorax obtusely armed at the sides, as in Purpuricenus. The upper surface may have been hairy, as in C. testaceus, but the hair is now entirely removed. The elevated lines of the elytra are hardly visible.

Toxotus flavolineatus, niger, flavo-pubescens, thorace antice posticeque valde constricto, nitido parcius punctulato, canaliculato, lateribus tuberculo magno acuto armatis elytris a basi angustatis, thorace duplo latioribus dense punctulatis et rugosis, margine a basi fere ad apicem vittaque dorsali postice evanescente antice abbreviata utrinque ornatis, apice intus subtruncata. Long. 1·0.

One specimen, Fort Vancouver to Yokolt Plain. On each side of the yellow dorsal vitta is a distinct elevated line.

Strangalia vitiosa, nigra, flavo-pubescens, capite rufo-variegato, thorace confertim punctato, latitudine breviore antrorsum angustato, lateribus subangulatis basique subito depressa testaceis, disco nigro, subcanaliculato, postice utrinque oblique impresso, elytris punctatis flavis, a basi angustatis, macula laterali

ad medium apiceque late nigris, illa oblique intus emarginata, pedibus testaceis femoribus tibiisque posticis ad apicem genubus tarsisque nigris, antennis pallido annulatis. Long. ·7.

Two specimens, one having the third joint of the antennæ black, the other having it pale at the base, like the following joints: Fort Vancouver and Prairie Paso. This species resembles very closely S. obliterata, but the thorax is shorter and more dilated posteriorly; the impressions are much stronger, and the disc is separated from the base by a sudden declivity; the basal margin is also yellow, and there is no trace of the two elytral spots before the middle; the apex of the elytra is not at all rufous.

In the description of S. obliterata (Journ. Acad. Nat. Sc. 2d ser. 1, 398) the testaceous sides of the thorax and the annulate antennæ are not mentioned; they were overlooked on account of the dark color of the specimen from which the description was made.

Plectrura producta, nigro-picea, parce griseo pubescens, guttulis flavo-pubescentibus parce adspersa, confertim rugose punctata, thorace callo dorsali parvo, elytris callis subquinque-seriatis nitidis parce ornatis, apice non crenulatis, singulatim longe acuminatis, antennis annulatis. Long. ·5.

One specimen, Fort Vancouver. This species does not agree with the description of P. spinicauda Mann. (Bull. Mosc. 1852, 366). The thorax has a strong lateral spine, with some smaller ones around it, as required in the generic description, but the tips of the elytra are not crenulate; the smooth tubercles form five series, of which only the outer one is entire; the others are imperfect, containing only three or four tubercles each; the sutural one is indistinct, the second ends just behind the middle; the third and fourth are abbreviated at each end, commencing about one-third from the base, and ending at one-fifth from the apex; the scutellum and a little thoracic line anterior to it are more densely pubescent, with yellow hair, than any other portions.

Tetraopes oregonensis, niger, capite thorace elytrisque coccineis (pallide pubescens?) thorace nigro-4-punctato, disco medio subito elevato, antice posticeque valde constricto, lateribus subito valde dilatatis, parcius punctato, elytris parce punctatis puncto humerali, duobus ante medium, altero utrinque pone medium, scutelloque nigris, pedibus antennarumque articulo 1mo coccineis, tarsis, genubus, tibiisque posticis nigris. Long. ·55.

Wenass River to Fort Colville. This species has the form of T. femoratus Lec., but the thorax is still more dilated on the sides. From T. basalis (the only other species known to me in which the base of the antennæ is red) it is easily known by the sudden elevation of the disc of the thorax. The pubescence has been removed by the alcohol, and I am therefore uncertain whether the antennæ are annulated. The black spots of the elytra are in the usual position, but are very small, and, with the exception of the humeral one, disappear entirely in many specimens.

Coccinella subversa, hemispherica nigra, capite ante oculos albo (ore, clypeoque feminæ nigris) thorace subtiliter punctulato, lateribus rotundatis, macula antica ad angulos quadrata, apiceque albis, elytris distincte at subtiliter punctulatis scutello nigro, et præcipue macula obliqua ad medium nigra notatis. Long. ·2.

This species resembles closely C. californica, but is smaller, and the elytra are much more distinctly punctulate.

Hippodamia moesta, rufescente-nigra, nitida, dense subtiliter punctulata, macula frontali rhomboidea, thoracis margine laterali antice posticeque latiore, linea media ante medium, guttisque dorsalibus duabus albis, elytris thorace latioribus macula laterali triangulari ad quadratem posticum alba ornatis. Long. 3.

Prairie Paso. The ungues are acutely toothed, as in most species of the genus; the white triangular spot of the elytra is between one-fourth and one-fifth from the apex, and is somewhat dilated along the margin in one specimen.

Necrophorus pollinctor, niger, thorace ovali, transverso, marginibus late depressis, disco tenuiter canaliculato, fortius transversim impresso, elytris par-

cius punctatis macula ad medium laterali in epipleuram extenso, alteraque parva lunata anteapicali rubris, pectore flavo-pubescente, abdomine breviter griseo-ciliato, tibiis posticis rectis. Long. ·58.

Fort Vancouver to Yokolt Plain. Of the species found in the Atlantic States, this approaches most nearly to N. sexpustulatus; the thorax is almost precisely as in that species, but is more profoundly impressed; the margin is punctured, the disc in one specimen is smooth, in the other obsoletely punctulate. The antennæ are entirely black.

Necrophorus confossor, niger, thorace ovali, transverso marginibus punctatis late depressis, disco parce punctulato canaliculato, transversim valde impresso, elytris sat punctatis fasciis duabus dentatis (prima ad suturam extendente, epipleurisque aurantiacis, pectore anoque flavo-piloso, antennarum clava aurantiaca basi nigro-picea tibiis posticis rectis. Long. ·68.

One specimen, Prairie Paso. This species closely resembles in appearance N. marginatus, but the thorax is less narrowed posteriorly, and the depressed margins are considerably broader, being, in fact, very much as in the preceding species, or N. nigrita.

Alophus didymus, niger, opacus, ochreo-fusco subtiliter dense pubescens, rostro canaliculato, thorace dense punctato, latitudine vix breviore antice profunde constricto lateribus antice paulo rotundatis tenuiter canaliculato, vitta utrinque sublaterali densius pallide pubescente, elytris thorace sesqui latioribus, dense subtiliter rugose punctulatis, ochreo nigroque subtessellatis, gutta utrinque ante medium, alteraque ad dodrantem densius pallide pubescentibus. Long. ·48.

Fort Vancouver; collected also by the late J. K. Townsend. Somewhat smaller and narrower than A. alternatus *Say*, and readily distinguished by the different form of the thorax and by the entire absence of elytral striæ. I have adopted the name under which it is known in the Berlin Museum.

I have several species of Curculionidæ, from various sources, collected in Oregon, but being unable to determine with certainty the genera to which they belong, and being in truth not at all satisfied with the elaborate arrangement used by Schönherr, I forbear describing them until I can bring them all together; reflecting that more confusion may be produced by referring a species to an improper genus, than by suffering it to remain undescribed.

Synopsis of the ŒDEMERIDÆ *of the United States.*

By JOHN L. LE CONTE, M. D.

Although I can contribute but two new species, at present, to this small family of Coleopterous insects, it seems desirable that a concise list of the species already described should be presented, as the descriptions have become somewhat scattered, and some of the species have been placed in wrong genera. The genera allied to Xylophilus are placed in this family by some entomologists, but the association does not seem natural, and the species are therefore not included in this synopsis.

CALOPUS Fabr.

1. C. angustus Lec. Ann. Lyc. of New York, 5, 158. Santa Fe, New Mexico.

DITYLUS Fisch.

1. D. quadricollis Lec. Ann. Lyc. 5, 157. Oregon.

2. D. cœruleus Hald. Journ. Acad. Nat. Sc. 2nd, 1, 96. *Upis cerulea* Randall, Bost. Journ. Nat. Hist. 2, 20. Maine and Lake Superior.

This species is very closely allied to D. lævis of Europe, but differs by the thorax being finely punctured, less rounded on the sides, less narrowed posteriorly, and by the basal angles being less prominent.

3. D. gracilis Lec. Proc. Acad. Nat. Sc. 7, 18. Oregon.

ANONCODES Schmidt, (*emend.* Redt.)

1. A. melanura Redt. Käfer, 623. *Cantharis mel.* Linn. Syst. Nat. *Necydalis notata* Fabr. Ent. Syst. 2, 353: Syst. El. 2, 371. *Œdemera apicialis* Say, Bost. Journ. Nat. Hist. 1, 188. *Nacerdes melanura* Schm. Linn. Entom. 1, 29: Hald. Journ. Acad. Nat. Sc. 2nd, 1, 96.

For the complete synonymy of this species, which is found on both continents, see Schmidt's memoir above quoted, and Redtenbacher's Käfer, p. 623. The insect is most abundant in the vicinity of our cities, and has probably been introduced by commerce. The synonymy omitted relates to its occurrence on the eastern continent, and therefore has no place in our local fauna. Redtenbacher very properly unites Nacerdes with Anoncodes.

ASCLERA Schmidt.

1. A. dorsalis. *Nacerda dorsalis* Mels. Proc. Acad. Nat. Sc. 3, 55. '*Xanthochroa vittata* Say,' Hald. Journ. Acad. Nat. Se. 2nd, 1, 96. Sea shore, South Carolina, Texas: abundant in June. The anterior tibiæ have two distinct terminal spurs, so that the species cannot be referred to either of the genera in which it has been previously placed. I can see no reason why it should be separated from Aselera, with many of the species of which it agrees in form.

2. A. tæniata, elongata, testacea tenuiter pubescens, thorace obovato, latitudine longiore, confertim punctulato, disco utrinque ante medium late impresso, lateribus piceis, elytris confertim punctulatis, piceis, margine suturaque testaceis, abdomine picescente, antennarum articulo 1mo 3io longiore. Long. ·28—·36.

Georgia: although resembling the next species in color, this is readily distinguished by the absence of elevated lines on the elytra, and by the basal joint of the antennæ being longer than the third joint: the thorax is also of a different form, being regularly obovate, and without a transverse impression. The antennæ and anterior tibiæ are sometimes slightly fuscous.

3. A. lateralis Hald. Journ. Acad. Nat. Sci. 2d, 1, 96. *Nacerda lateralis* Mels. Proc. Acad. Nat. Sc. 3, 54. *A. signaticollis* Hald. loc. cit. 96. Middle and Southern States.

A. *signaticollis* Hald. is merely a variety of this species in which the brown color has extended over the greater part of the head and legs, and in which the testaceous margin of the elytra has also disappeared.

4. A. bicolor Lec. Ann. Lyc. 5, 158. Oregon.

5. A. thoracica Hald. Journ. Acad. Nat. Sc. 2d, 1, 97. *Necydalis thoracica* Fabr. Syst. El. 2, 370. Olivier, Enc. Méth. 8. 447. *Œdemera fraxini* Say, Journ. Acad. Nat. Sc. 3, 272. Middle and Southern States.

6. A. notoxoides Hald. Journ. Acad. Nat. Sc. 2d ser. 1, 96. *Necydalis notoxoides* Fabr. Syst. El. 2, 369. Olivier, Enc. Méth. 8, 447. Southern States.

7. A. excavata Lec. Am. 5, 158. San Diego, California.

8. A. ruficollis Hald. Journ. Acad. Nat. Sc. 2d ser. 1, 96. *Œdemera ruficollis* Say, Journ. Acad. 3, 271. *Ischnomera carinata* Newm. Ent. Mag. 5, 378. Middle and Southern States.

9. A. puncticollis Hald. Journ. Acad. Nat. Sc. 2d ser. 1, 96. *Œdemera puncticollis* Say. Journ. Acad. 3, 273. Lake Superior and New York; Missouri, (Say).

10. A. obscura, nigro-picea, opaca, tenuiter fusco-pubescens, ore rufescente, thorace latitudine breviore, obovato, subtiliter dense punctato rufo disco purpurascente, callo ad medium sublævi, tenuiter canaliculato, basi distinctius marginata, elytris subtiliter dense punctulatis lineis duabus obsoletis elevatis, antennarum articulo 1mo 3io non longiore. Long. ·44.

Two specimens Sta Fe, New Mexico, Mr. Fendler. The thorax is broader, and anteriorly more narrowed behind than in any other of our species. The last (11th) joint of the antennæ is nearly one half longer than the 10th, and is dis-

tinctly constricted as in Ditylus at the middle. The labrum and base of the mandibles are reddish; and the thorax is ferruginous, exhibiting a violet tinge at the middle of the disc, where there is an indistinct smooth space.

Œdemera vestita Say, Journ. Acad. 3, 273. Missouri. Unknown to me.

Œdemera erythrocephala Germ. Ins. Nov. 167. Kentucky; probably Asclera, but unknown to me.

Ischnomera unicolor Mels. Proc. Acad. 3, 54, is very similar and perhaps identical with the European Asclera cœrulea.

'Dryops rufifrons, cyanea, capite thoraceque rufis.' Fabr. Ent. Syst. 1, 2, 76; Syst. El. 2, 68. Unknown to me.

A letter was read from Wm. Parker Foulke, Esq., dated February 3d, 1854, accepting the appointment to deliver an Address before the Academy on the 21st of March next, the anniversary of its foundation.

Mr. Vaux, on behalf of the Publication Committee, reported the publication of Part 4, Vol. 2, new series, of the Journal.

The Report of the Corresponding Secretary was read and adopted.

Mr. Vaux read a letter from Prof. J. Lawrence Smith, dated Washington, Dec. 20th, 1854, transmitting a portion of a highly interesting Meteorite from Tennessee, and asking in exchange fragments of Meteorites in the Cabinet of the Academy, for analysis.

Referred to the Committee on Mineralogy.

ELECTION.

George Harding, Esq. and Fairman Rogers, Esq., of Philadelphia, Dr. Thomas J. Turner, U. S. Navy, and George Dock, M. D., of Harrisburg, were elected *Members;* and Charles Enderlin, M. D., of New York, was elected a *Correspondent.*

DONATIONS TO MUSEUM

In January and February, 1854.

January 10th.

Mounted specimen of Ateles hybridus, Geoff.; from South America. Presented by Mr. John Krider.

Mounted specimen of Sciurus hudsonicus. From Dr. Zantzinger.

Five very fine specimens of Tracks, in the new Red Sandstone, of Brontozoum giganteum, Hitchcock; from the Connecticut Valley. From Dr. Thomas D. Mütter.

A collection (40 specimens) of minerals from Peru. From Dr. S. Weir Mitchell.

Fossilized Wood, from California. From Capt. John H. Ritchie.

Specimen of limpid Quartz, cut into facets. From Mr. Isaac Lea.

January 17th.

Three specimens of Spirifer glaber, from Van Diemen's Land; Casts of Chelonian Tracks and rain drops in New Red Sandstone, from Stourton, Great Britain; and skull of Chelonia midas. From Dr. T. B. Wilson.

Pearl, from the common oyster. From Mr. Z. Hammond, of Newport, R. I.

Numerous specimens of Pholas ———, with the animal (in spirits); from Payta, Peru. From Dr. Ruschenberger.

Specimen of Locusta ———, from Nicaragua. From Dr. Woodhouse.

February 7th.

Cranium and Horns of Damalis capensis, from South Africa. From Dr. Watson.

Iron Ore, from Lancaster Co., Penna. From Dr. Le Conte.

Very fine specimen of the American Elk (Cervus canadensis), from Potter Co., Penna. Presented by Messrs. Vaux, I. Lea, Carpenter, Leidy, J. L. Le Conte, Watson, McCall, Foulke, Cooke, Sergeant and Lambert.

Specimens of the wood, bark, leaves and fruit of Wellingtonia gigantea, from California; wood and leaves of Taxodium sempervirens; leaves and fruit of Laurus regia, and fruit of Æsculus californicus. Presented by the Acad. of Nat. Sciences of California, at San Francisco.

An Engraving of the Mammoth Arbor Vitæ, of California (Wellingtonia gigantea). Presented by the Publishers, Messrs. Britton and Rey.

February 14th.

Anomia ephippium Lin.; from Beesley's Point, N. J. From Mr. S. Ashmead.

Tellina inequistriata Don., from Demarara. From Dr. Samuel Lewis.

DONATIONS TO LIBRARY

In January and February, 1854.

January 3d.

American Journal of Science and Arts, January, 1854. From the Editors.

On the Parasitism of Comandra and Gerardia. By J. Stauffer. From the Author.

Annals of Science, Vol. 2, No. 1. From the Editors.

The New York Journal of Medicine, Vol. 12, No. 1. From the Editors.

Virginia Medical and Surgical Journal, Dec., 1853. From the Editors.

Description de Nouveaux Oiseaux d'Afrique decouverts et dessines d'apres nature. Par le Baron J. W. De Müller. 1me liv. From the Author.

Des causes de la coloration de la peau, et des differences dans les formes du Crane. Par le Baron de Müller. From the same.

Ueber Hautfarbe und Schädelbildung als ethnologisches Princep vom physiologischen Standpunkt. Von J. W. De Müller. From the same.

Ueber den Farbenwechsel der Vögel. Von J. W. de Müller. From the same.

Das Einhorn; vom geschichtlichen und naturwissenschaftlichen Standpunkte betrachtet. Von J. W. de Müller. From the same.

Fliegende Blätter aus meinem Tegebuche gefuhrt auf einer Reise in das Innere von Afrika in den Jahren 1847–8–9. Von. J. W. v. Müller. 8vo. From the same.

Extracts from Notes taken during his Travels in Africa, by the Baron v. Müller. From the same.

Comptes Rendus. Tome 37. Nos. 20, 21. From Dr. Wilson.

Annales des Sciences Naturelles. Tome 20, No. 2. From the same.

Annales de Chimie et de Physique. Nov., 1853. From the same.

Journal of the Franklin Institute. Dec., 1853. From the same.

January 10th.

Memorie della Reale Accademia delle Scienze di Torino. Serie 2da. Tome 5, 6, 7, 8, 9, 10, 13. 4to. From the Academy.

Memoire sur les conséquences qu'on peut déduire des Expériences de M. Regnault sur la loi de compressibilité des Gaz. Par le Comte Avogadro. From the Author.

Revision of the Elateridæ of the United States. By J. L. Le Conte, M. D. From the Author.

Characters of some new genera of Plants, mostly from Polynesia, in the Collection of the U. S. Expl. Expedition. By Asa Gray, M. D. From the Author.

January 17th.

Journal of the Indian Archipelago and Eastern Asia. Vol. 7, Nos. 2 and 3. From the Editors.

Quarterly Journal of the Geological Society of London. No. 36. From the Society.

Charleston Medical Journal and Review. Vol. 9, No. 1. Jan., 1854. From the Editors.

The following were presented by Dr. Wilson on the usual condition:

The Mammals of Australia. By John Gould. No. 5. Folio.

Odontographia. Vergleichende Darstellung des Zahnsystemes der lebenden und fossilen Wirbelthiere. Von C. G. Giebel. 3 lief, 4to.

Bonplandia, 1 Jahrgang, No. 20, 21, 22.

Annals and Magazine of Natural History. Nov. and Dec., 1353.

London, Edinburgh and Dublin Philosophical Magazine. December, 1853.

Memoirs of the Geological Survey of the United Kingdom. Decade 7.

A History of British Crustacea. By Thomas Bell. Part 9, 8vo.

Description des Mollusques Fossils qui se trouvent dans les Grès Verts des Environs de Genève. Par F. J. Pictet et W. Roux. 4me liv., 4to.

Conchologia iconica. By Lovell Reeve. Parts 122, 123.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Herausg. von W. Dunker und H. von Meyer. 3 band 5 lief. 4to.

Zoologie et Paléontologie Francaises. Par M. Paul Gervais. 19me et 20me livs.

February 7th.

Württembergische naturwissenschaftliche Jahreshefte. Herausg. von Prof. Mohl, Prof. Krauss, &c. 1854, No. 1. From the Editors.

Jahresbericht des naturwissenschaftlichen Vereines in Halle. 1852, Nos. 3, 4. From the Association.

Zeitschrift der deutschen geologischen Gesellschaft. 5 band, 2 heft. 8vo. From the Society.

Zeitschrift für die Gesammten Naturwissenschaften. Herausg. von dem Naturwissen. Vereine für Sachsen und Thüringen in Halle. 1853, Jan.—Juli. From the Association.

Jahrbuch der Chemie und Physik. 1826, 1827, 1828. Herausg. vom Dr. J. S. C. Schweigger und Dr. Fr. W. Schweigger-Seidel. From the Editors.

March 7th, 1854.

DR. ELWYN in the Chair.

Letters were read:

From the American Philosophical Society, dated Feb. 17th, 1854; from the Lyceum of Natural History of New York, dated Feb. 21, 1854, and from the Royal Academy of Sciences of Stockholm, dated Nov. 2, 1854, severally acknowledging the receipt of the Publications of the Academy.

From the Royal Academy of Sciences of Stockholm, dated Nov. 2, 1853, transmitting the volumes acknowledged this evening.

The Corresponding Secretary read a printed circular from the Portland (Maine) Natural History Society, dated Jan., 1854, giving an account of the destruction by fire of their entire Cabinet and Library, and soliciting donations in aid of a renewal of the same.

Referred to the Curators and Library Committee, with power to act.

A paper, intended for publication in the Proceedings, was read, entitled "Descriptions of new species of Fishes collected in Texas, New Mexico and Sonora, by Mr. John H. Clark, on the U. S. and Mexican Boundary Survey, and in Texas by Capt. Stewart Van Vliet, U. S. A., Part 2; by S. F. Baird and C. Girard." Referred to Dr. Le Conte, Dr. Hallowell and Mr. Cassin.

Dr. Le Conte presented a paper for publication in the Proceedings, entitled "Note on the genus Amblychila, Say; which was referred to Dr. Zantzinger, Mr. Ashmead and Dr. Leidy.

Mr. Conrad presented the following papers, viz., "Rectification of the generic names of Tertiary Fossil shells," and "Notes on Shells, with descriptions of three recent and one fossil species," both of which, being intended for publication, were referred to Dr. Leidy, Mr. Hanson and Dr. Le Conte.

Mr. Cassin announced the decease of Mr. John Speakman, one of the few remaining founders of the Academy.

March 14th.

Vice-President BRIDGES in the Chair.

A letter was read from George Dock, M. D., dated Harrisburg, Penna., March 4th, 1854, acknowledging the receipt of his notice of election as a member.

Also a letter from G. H. Kuntz, of Leipzig, dated Feb. 11, 1854, in reference to a collection of Birds' Eggs for sale in that city, with a catalogue of prices. Referred to the Curators.

March 28th.

Vice-President BRIDGES in the Chair.

The Committees, to which were referred papers read March 7th, by Prof. Baird and Charles Girard, by Dr. Le Conte, and by Mr. Conrad, severally reported in favor of their publication in the Proceedings.

*Descriptions of new species of Fishes collected in Texas, New Mexico and Sonora, by Mr. John H. Clark, on the U. S. and Mexican Boundary Survey, and in Texas by Capt. Stewart Van Vliet, U. S. A.**

By F. S. BAIRD and CHARLES GIRARD.

Second Part.

PERCOIDÆ.

1. POMOTIS SPECIOSUS, B. and G.—Body ovate, gibbous on the nape; snout small. Head forming the fourth of the total length. Eyes large, their diameter one fourth of the length of the side of the head. Mouth small, posterior extremity of intermaxillary extending to a vertical line passing in advance of the orbit. Peduncle of the tail well developed; caudal with its posterior margin emarginated, and forming little less than the fifth of the total length. Pectorals elongated, their tips reaching as far backwards as those of the ventrals, and to the anterior margin of the anal. Scales of lateral line, 43.

D X. 11. A III. 11. C 4. I. 8. 7. I. 3. V I. 5. P 11.

Ground color, as preserved in alcohol, brownish; lighter beneath. A narrow blackish vitta on each side near the dorsal line, following the curve of the back. Posterior portion of soft dorsal provided with a large subcircular black spot. Anal and ventrals blackish. Pectorals yellowish. Opercular flap moderate, black.

Brownsville, Texas.—Capt. Van Vliet. J. H. Clark.

2. POMOTIS FALLAX, B. and G.—Body short and high, thicker, and head and mouth larger than in *P. speciosus*. Body depressed at the nape. Outline of head more oblique, at an angle of about 45 degrees with the axis of the body. A vertical line erected at the posterior extremity of the maxillary, would pass along the anterior edge of the pupil to the line of insertion of head and body. Opercular flap very large and black. Peduncle of the tail shorter than in *P. speciosus*, as also the pectorals, which do not reach as far back as the filamentous tips of the external soft ray of the ventrals. Scales of lateral line, 39.

D X. 11. A III. 9. C 3. I. 8. 7. I. 2. V I. 5. P 14.

Deep blackish brown above, yellowish beneath. Bluish dots on the sides of head, sometimes confluent into irregular lines. A small dark spot at the posterior and basal portion of the soft dorsal fin. Ventrals blackish.

Elm Creek, Texas.—J. H. Clark.

3. POMOTIS CONVEXIFRONS, B. and G.—Allied to the two preceding species in general appearance. The nape is little if at all depressed. A vertical line erected from the posterior extremity of the maxillary, would pass along the anterior border of the pupil and fall considerably behind the line of junction of head and body; angle of outline of head with the axis of body, more than 45°. Scales in lateral line, 37. Peduncle of tail short. Opercular flap black and larger than in *P. fallax*. The spiny dorsal is highest upon its middle, and the external soft ray of ventrals not prolonged into a thread.

D X. 11. A III. 9. C 3. I. 8. 7. I. 2. V I. 5. P 13.

Color uniform reddish brown; fins light greyish. Posterior and basal portion of soft dorsal provided with a small roundish spot. Ventrals blackish.

Rio Cibolo, trib. of Rio San Antonio, Texas.—J. H. Clark.

4. POMOTIS NEFASTUS, B. and G.—General form more elongated than in *P. convexifrons*, and less so than in *P. aquilensis*. Outline nearly straight along nape. Opercular flap small, black, narrowly margined with blue. Head forming two-sevenths of the total length. Eyes rather large, their diameter forming the fourth of the length of side of head. Mouth rather small; a vertical line erected from the posterior extremity of the maxillary, would pass between the anterior edge of the orbit and the pupil, and fall considerably anterior to the

* The species described in this paper from the waters of western Texas and those emptying into the Gila, were collected while the Boundary Survey was in charge of Col. J. D. Graham; the others while under Major W. H. Emory.

nuchal line. Caudal fin posteriorly emarginated. Spiny dorsal comparatively low. Soft part of dorsal and of anal well developed. Tip of ventrals reaching the anterior margin of anal. Pectorals not extending quite as far back. Scales along lateral line, 45.

D XI. 10. A III. 10. C 3. I. 8. 7. I. 2 V I. 5. P 14.

Uniform reddish brown, lighter on lower part of flanks. A small black spot at the posterior basal part of the soft dorsal. Dorsals, caudal and anal greyish, with a darker margin. Ventrals and pectorals yellowish.

Rio Cibolo and Rio Salado, Texas.—J. H. Clark.

5. Pomotis heros, B. and G.—General outline subelliptical. Nape depressed. Head forming the third of the length, not including the caudal fin. Caudal entering for about five times in the total length. Eyes large, and contained four times, by their diameter, in the length of side of head. Mouth small; posterior extremity of intermaxillaries not extending beyond a vertical from the anterior rim of the orbit. Pectorals very long, their tip reaching backwards as far as the second soft ray of anal fin. Tip of ventrals extending to the first spine of the anal. Caudal crescent-shaped. Spiny dorsal elevated.

D X. 12. A III. 11. C 3. I. 8. 7. I. 2. V I. 5. P 13.

Color uniform blackish brown. Pectorals yellowish; other fins greyish. Opercular flap black with a whitish border.

Rio Cibolo, trib. of Rio San Antonio, Texas.—J. H. Clark.

6. Bayttus longulus, B. and G.—*Pomotis longulus*, B. and G. Proc. Acad. Nat. Sc., Philada. vi. 1853, 391; and in *Marcy's* Expl. Red River, La., 1853. Pl. xii., page 245.

The specimens are larger than those previously described. The coloration is likewise better preserved.

D X. 11. A III. 9. C 3. I. 8. 7. I. 2. V I. 5. P 13.

The ground color, as preserved in alcohol, is reddish brown with minute impunctures of greyish, the dorsal and anal being provided posteriorly, the first with a subcircular, large black spot, the second with an elongated spot of the same color, and extending nearly to the whole base of the soft part of that fin. The pectorals and caudal are uniform greyish, the latter having a yellowish border. Ventrals and external half of anal yellowish.

Rio Cibolo, trib. of Rio San Antonio, Texas.—J. H. Clark.

7. Gaystes nuecensis, B. and G.—Head forming four-thirteenths of the entire length. Mouth deeply cleft; its angle reaching a vertical passing backwards of the eye; lower jaw longer than the upper. Eyes rather large; their diameter contained six times in the length of side of head. Scales on the cheeks a little smaller than those on the opercular apparatus. First dorsal lower than the second. Caudal subcrescentic posteriorly. Anal extending a little further behind the second dorsal, though shorter and less deep.

D X. 13. A III. 11. C 4. I. 8. 8. I. 3. V I. 5. P 15.

Ground color of back black, clouded with greyish brown. Sides dull yellow-grey, with an interrupted darker band. Beneath light yellow.

Rio Frio and Rio Nueces, Texas.—J. H. Clark.

LABRIDÆ.

HERICHTHYS, B. and G.—Body compressed; outline subelliptical; frontal region convexe. Teeth small, subconical, simple, anterior row the most conspicuous. Lower lip entire. Five branchiostegal rays. Ventrals, dorsal and anal fins acuminated; caudal rounded. Five or six spiny rays to the anal. Scales large; lateral line interrupted posteriorly.

Obs.—This genus has strong affinities with *Heros* of Heckel, from which it chiefly differs by the structure of the anterior row of maxillary teeth, which are simple, instead of being provided with lateral hooks. The relative size of the scales will likewise afford another generic feature of no small importance.

8. Herichthys cyanoguttatus, B. and G.—Head forming about two-sevenths of the entire length. Snout subconical, detached from the frontal line by a de-

pression in advance of the eye. Jaws equal. Three irregular rows of minute teeth situated behind an anterior and more conspicuous row. Eyes rather large and circular, their diameter being contained four times and a half in the length of side of head. Posterior part of cheeks scaly; large scales on the opercular apparatus. Anterior margin of dorsal situated in advance of the insertion of ventrals; tip of posterior rays extending a little beyond the tip of those of anal. Insertion of ventrals backwards of base of pectorals; external soft ray much longer than the others. The caudal forms about the two-ninths of the entire length.

D XVI. 9.+1. A V. 6+1. C 2. I. 7. 7. I. 3. V I. 5. P 14.

The scales are quite large; there being 19-20 rows of them across the line of greatest depth, and eighteen in the lateral line, from upper angle of operculum to where it is interrupted, and eight more beneath on the peduncle of the tail. Ground color brownish, with small bluish spots scattered all over the body and fins.

Brownsville, Texas (fresh water).—Capt. Van Vliet and John H. Clark.

SILURIDÆ.

AILURICHTHYS, B. and G.—Head depressed, subrounded, smooth and unarmed. Two pairs of flattened barbels,—a maxillary pair, sometimes very much elongated, and a submaxillary one, always shorter. Velvet teeth on the maxillaries, and a band of similar teeth immediately behind the upper maxillary. Anterior margin of both dorsal and pectoral fins prolonged into a membranous thread, more or less elongated according to the species. An adipose fin opposite the anal. Caudal more or less forked.

9. AILURICHTHYS MARINUS, B. and G.—*Silurus marinus*, Mitch.—*Galeichthys parræ*, Cuv. and Val., Hist. Nat. Poiss. xv. 1840, 33.—*Galeichthys marinus*, Storer, Synops. 1846, 149.

Indianola, Texas.—J. H. Clark.

Obs.—We refer to the same genus; *Galeichthys gronovii*, *G. eydouxii* and *G. blochii*, of Cuvier and Valenciennes.

10. ARIUS EQUESTRIS, B. and G.—Maxillary barbels extending to the middle of length of pectorals. Head contained four times and three-quarters in the total length. Adipose fin of medium size, and situated opposite to the middle of anal. The latter is concave upon its external margin, and deeper than long. The anterior margin of dorsal is equi-distant between tip of snout and adipose fin. Tip of pectorals extending as far back as the posterior margin of dorsal. Anterior margin of dorsal thrice as high as the posterior margin; superiorly that fin is subconcave. Longitudinal diameter of eye contained five times in the length of side of head.

Br. 5. D I. 7. A 16. C 13. I. 7. 7. I. 12. V 6. P I. 9.

Indianola, Texas.—J. H. Clark.

11. PIMELODUS AFFINIS, B. and G.—Very closely allied to *P. cærulescens*, Rafin. and distinguished from it by a more advanced position of the dorsal fin and a greater elongation of the barbels. The head is contained five times and a half in the entire length. The caudal is about the same length as the head. The length of the anal fin is a little more than the fourth of the length, as in *P. cærulescens*. The eyes are of medium size, and their diameter contained a little over six times in the length of side of head.

D I. 6. A 35. C 5. I. 8. 7. I. 6. V 8. P I. 10.

Color reddish brown above, silvery white beneath; occasionally marked with subcircular and small black spots.

Rio Grande del Norte.—J. H. Clark.

CHARACINI.

ASTYANAX, B. and G.—Adipose fin present. Abdominal line not serrated. A double row of teeth on both the upper and lower jaw, and flattened with several conical spines or processes upon their edge. Neither canine nor palative teeth. Dorsal fin above the ventrals. Scales large.

12. Astyanax argentatus, B. and G.—Body very much compressed. Head short, forming about the fifth of the entire length. Eyes large and circular. Mouth of medium size, its angles not extending to the vertical of the pupil. Opercular apparatus quite narrow. Dorsal fin subquadrangular, higher than long, slightly concave upon its upper margin, its origin being midway between tips of snout and base of caudal fin. Adipose slender, opposite the posterior portion of anal. Caudal deeply forked and longer than the head. Anal very long, exteriorly concave, much deeper anteriorly than posteriorly, and situated behind the dorsal. Ventrals immediately under the dorsal, and rather slender. Pectorals likewise slender, their tips, however, do not reach the base of ventrals.

D I. 10. A I. 20+1. C 5. I. 9. 8. I. 4. V 8. P 13.

Scales higher than long, somewhat truncated anteriorly; their surface exhibiting several very marked diverging striæ. Lateral line conspicuous, slightly inclined downwards.

Back deep reddish brown. Sides silvery. Belly reddish. Fins reddish yellow. An elongated black spot at the base of the tail, extending along the central ray of caudal fin.

Upper tributaries of Rio Nueces.—J. H. Clark.

CYPRINIDÆ.

13. Catostomus congestus, B. and G.—At first sight this species calls to mind *C. gibbosus*, by its short and contracted shape; it differs from it, however, in the scales and form of the fins. The head is contained five times and a half in the total length. The snout is blunt, abruptly truncated, and the mouth very small. The eyes are large, subelliptical, and their longitudinal diameter contained four times in the length of the head from the tip of snout to posterior margin of opercular apparatus. The dorsal fin is subquadrangular, its anterior margin being nearer to the tip of snout than to the base of caudal. The caudal is semilunar, with the lobes rounded. The anal is narrow, its length less than the half its height. The ventrals are inserted under the middle of the dorsal. The tip of pectorals does not reach the base of ventrals.

D II. 12; A I. 7+1; C 4. I. 8. 8. I. 3; V 9; P 17.

The scales are large, there are fourteen rows across the line of greatest depth of body. The lateral line, which runs straight along the middle of the side, contains about forty-six scales.

The color as preserved in alcohol is uniform reddish brown above, lighter beneath, sides silvery. The fins are all unicolored, and of the tint of the region to which they belong.

Rio Salado, Texas.—John H. Clark.

14. Catostomus clarkii, B. and G.—A rather small and short species, in shape subfusiform and compressed. The dorsal line is gently arched. Head small, subconical, truncated anteriorly, forming a little less than the sixth of the total length of the fish. The eyes are subcircular, of medium size, their diameter being contained about four times in the length of side of head. The mouth is larger than in *C. congestus*, and surrounded with more developed lips. The upper margin of dorsal fin is slightly concave, its anterior margin as high as long. The caudal is subcrescentric posteriorly, with rounded lobes. The insertion of the anal is narrow, its height is twice and a half the width. The insertion of ventrals is under the posterior third of the dorsal. The pectorals are elongated and of medium development.

D II. 11+1; A II. 7; C 5. I. 8. 8. I. 4; V 10; P 17.

The scales are rather large; about twenty rows across a line from base of ventrals to anterior margin of dorsal. Sixty-eight to seventy scales in the lateral line, which extends to caudal fin.

Colors in alcohol: greyish brown above, with scattered darker nebulous spots; sides greyish; belly whitish; fins unicolor, vertical ones greyish; horizontal ones yellowish.

Rio Santa Cruz, Gila.—John H. Clark.

15. CATOSTOMUS PLEBEIUS, B. and G.—Body subfusiform, compressed. Head elongated, subconical, forming the fifth of the entire length. Mouth of medium size. Eyes large, subelliptical, their longitudinal diameter being contained about five times in the length of side of head. Dorsal fin subquadrangular, its anterior margin being equi-distant between the tip of snout and the first rudimentary rays of the upper lobe of the caudal. The latter is slightly concave posteriorly, and the lobes rounded off. The base of the anal is contained nearly three times in its height, and when brought backwards its tip extends to the rudimentary rays of the inferior lobe of the caudal fin. The ventrals are inserted under the posterior third of the dorsal, bent backwards their tip does not reach as far as the anus. The pectorals are of medium development, subovate, pointed posteriorly.

D I. 9+1. A I. 7. C 3. I. 8. 8. I. 2. V 8. P 14.

The scales are of medium size, considerably the largest on the peduncle of the tail. Twenty-eight to thirty rows from the base of the ventrals to the dorsal fin. About eighty in the lateral line, which is not discernible as far as the base of caudal fin.

The color, as preserved in alcohol, is dark brown on the upper regions, faintly mottled with blackish patches. The sides and belly exhibit traces of orange in some of the specimens, in others it is pale yellowish. The fins are unicolor, the dorsal, caudal, and pectorals blackish brown; the anal and ventrals yellowish.

Rio Mimbres, trib. of Gila.—John H. Clark.

16. CATOSTOMUS INSIGNIS, B. and G.—Subfusiform, elongated, compressed. Head forming two-ninths of the total length. Mouth of medium size, surrounded with considerably developed lips. Eyes large, subelliptical; their longitudinal diameter contained almost six times in the length of side of head. The dorsal fin is subquadrangular, its anterior margin is situated midway between the snout and base of caudal fin. The latter is posteriorly forked, with its angles subacute. The anal is quite narrow and elongated, its base enters three times in the length of its anterior margin. The ventrals are inserted under the posterior half of the dorsal, their tip posteriorly does not reach the vent. The pectorals are elongated, their tips not extending as far back as the anterior margin of the dorsal.

D II. 11. A II. 7+1. C 3. I. 8. 8. I. 3. V 10. P 18.

The scales are large, there are twenty rows between the base of ventrals and the dorsal line. The lateral line takes a straight course along the middle of the sides and is composed of about sixty scales.

The color, as preserved in alcohol, is dark reddish brown above and on the sides, lighter beneath. There is a black dot at the base of each scale, giving a dotted appearance to the body. The fins are unicolor.

Rio San Pedro of the Rio Gila.—John H. Clark.

17. CARPIODES TUMIDUS, B. and G.—Head forming four-nineteenths of the total length. Snout conical. Mouth very small and protruding. Lips small. Eyes very large, their diameter contained four times in the length of side of head. Anterior margin of dorsal equi-distant between the tip of snout and base of caudal, the posterior portion of which is very low. Tip of anal extending to base of caudal. Tip of ventrals reaching as far back as the vent. Tip of pectorals extending almost to base of ventrals. Caudal fin forked, and about the same length as the head.

D II. 27. A II. 9. C 5. I. 8. 8. I. 4. V II. 9. P 16.

Thirteen rows of scales may be counted on the line of greatest depth, and thirty-seven or thirty-eight scales on the lateral line.

Color light reddish brown above and yellowish white beneath.

Near Fort Brown, Texas.—John H. Clark.

18. GILA GIBBOSA, B. and G.—Body rather thick; dorsal region between dorsal and occiput more arched than generally observed in the genus. Head forming a little less than the fourth of the entire length; greatest depth nearly equal to the length of head. Eyes quite large, their diameter contained five times in the length of the side of head. Anterior margin and dorsal nearer to the base of

caudal than to the tip of snout. Ventrals, as usual, in advance of the dorsal, and anal behind the latter. Greatest length of caudal constituting nearly the seventh of the entire length. The scales assume a greater uniformity according to the regions than in the other species hitherto described.

D I. 8-1. A I. 9. C 5. I. 9. 8. I. 4. V 9. P. 17.

Color in alcohol; dark reddish brown above, and on the side; dull yellow beneath.

Rio Santa Cruz, tributary of the Gila.—John H. Clark.

19. GILA PULCHELLA, B. and G.—Allied to the preceding species, from which it can be distinguished by the more slender body and head. The head is shorter. The mouth smaller. The greatest depth is contained about five times in the entire length; in *Gila gibbosa* but four times. Diameter of the eye entering five times and a half in the length of the side of head. Length of caudal forming about the sixth of the entire length. Two rudiments of spines at the anterior margin of dorsal, instead of one.

D II. 9. A I. 9. C 4. I. 9. 8. I. 3. V 9. P 17.

Color, greyish brown above and on the side; dingy yellow beneath.

Rio Mimbres, tributary of the Gila.—John H. Clark.

Rectification of the generic names of Tertiary Fossil Shells.

By T. A. CONRAD.

Since the publication of several papers on Tertiary fossils, I have, with the aid of more numerous works of reference, been enabled to rectify the nomenclature of some genera, selecting the earliest authority, whether the author had published a diagnosis or only indicated a genus by reference to a typical species.

GLYCIMERIS, *Lam.*

G. americana, *Con.*; G. reflexa, *Say*; G. elongata, *Con.*, 1835; G. goldfussii, *Wagner*; G. elongata, *Con.*; G. porrecta, *Con.*; (PANOPÆA.)

GLOSSUS, *Poli.*

G. rusticus, *Sowerby*; G. Markoei, *Con.* (ISOCARDIA.)

SYNDOSMYA, *Recluz.*

S. æquata, *Con.*; S. constricta, *Con.*; S. linosa, *Con.*; S. mississippiensis, *Con.*; S. nuculoides *Con.*; S. protexta, *Con.*; S. subobliqua, *Con.*; S. subreflexa, *Con.* (AMPHIDESMA.)

MYTILUS, *Lin.*

M. incurvus, *Con.* (MYOCONCHA INCURVA, *Con.*)

NAVICULA, *Bl.in.*

N. Marylandica, *Con.*; N. cucullioides, *Con.*; N. lima, *Con.*; N. mississippiensis, *Con.*; N. protracta, *Con.* (BYSSOARCA.)

LEDA, *Schum.* NUCULA, *Lam.*

L. acuta, *Con.*; L. æqualis, *Con.*; L. bella, *Con.*; L. calcarensis, *Con.*; L. carolinensis, *Con.*; L. cœlata, *Con.*; L. concentrica, *Say*; L. cultelliformis, *Rodgers*; L. lævis, *Say*; L. liciata, *Con.*; L. limaluta, *Say*; L. mucronata, *Con.*; L. opulenta, *Con.*; L. parva, *Rodgers*; L. serica, *Con.*; L. subtrigona, *Con.*; L. tellinula, *Con.*; (NUCULA.)

MERCENARIA, *Schum.* VENUS, *Lin.*

M. capax, *Con.*; M. Ducatellii, *Con.*; M. Mortoni, *Con.*; M. permagna, *Con.*; M. Rileyi, *Con.*; M. staminea, *Con.*; M. tetrica, *Con.*; M. tridacnoides. *Lam.* (VENUS.)

MERETRIX, *Lam.* CYTHEREA, *Lam.*

M. æquorea, *Con.*; M. albaria, *Say*; M. astartæformis, *Con.*; M. carolinen-

sis, M. discoidalis, *Con.*; M. elevata, *Con.*; M. eversa, *Con.*; M. floridana, *Con.*; M. imitabilis, *Con.*; M. lenticularis, *Con.*; M. liciata, *Con.*; M. Marylandica, *Con.*; M. metastriata, *Con.*; M. Mississipppiensis, *Con.*; M. Mortoni, *Con.*; M. Nuttallii, *Con.*; M. obovata, *Con.*; M. ovata, *Rodgers*; M. pandata, *Con.*; M. perbrevis, *Con.*; M. perovata, *Con.*; M. Poulsoni, *Con.*; M. pyga, *Con.*; M. reposta, *Con.*; M. Sayana, *Con.*; M. semipunctata, *Con.*; M. sobrina, *Con.*; M. subimpressa, *Con.*; M. subnasuta, *Con.* (CYTHEREA.)

SCHIZODESMA, *Gray.* MACTRA, *Lin.*

S. delumbis, *Con.*; S. ponderosa, *Con.* (MACTRA.)

MACTROPSIS, *Con.*

M. æquorea, *Con.*; M. rectilinearis, *Con.* (TRIQUETRA, *Con.*)

ARCOPAGIA, *Leach.* TELLINA.

A. biplicata, *Con.* (TELLINA.)

NEITHEA, *Drouet.*

N. Humphreysii, *Con.*; N. Poulsoni, *Con.* (PECTEN.)

CYCLAS, *Klein.*

C. acclinis, *Con.*; C. alveata, *Con.*; C. anodonta, *Say*; C. carinifera, *Con.*, C. contracta, *Say*; C. crenulata, *Con.*; C. cribraria, *Say*: C. dolabra, *Con.*; C. Foremani, *Con.*; C. Jamaicensis, *Lam.*; C. metastriata, *Con.*; C. mississippiensis, *Con.*; C. modesta, *Con.*; C. multistriata, *Con.*; C. pandata, *Con.*; C. perlevis, *Con.*; C. pomilia, *Con.*; C. radians, *Con.*; C. squamosa, *Lam.*; C. subobliqua, *Say*; C. subplanata, *Con.*; C. subvexa, *Con.*; C. symmetrica, *Con.*; C. trisulcata, *Con.*; C. undula, *Con.* (LUCINA.)

DOSINIA, *Scopoli.*

D. (venus) concentrica? *Born*; (D. acetabulum, *Con.*;) D. elegans, *Con.*; D. (cytherea) lenticularis, *Rodgers*; D. (cytherea) excavata, *Morton*; D. discus, *Reeve.* (ARTEMIS.)

The last is a recent species, and the two preceding Cretaceous. D'Orbigny makes D. acetabulum distinct from D. concentrica.

UNIVALVES.

ANCILLA, *Lam.*

A. altilis, *Con.*; A. lymneiodes, *Con.*; A. scamba, *Con.*; A. subglobosa, *Con.*; A. tenera, *Con.* (ANCILLARIA.)

CRUCIBULUM, *Mont.*

C. constrictum, *Con.*; C. costata, *Say*; C. dumosa, *Con.*; C. grandis, *Say*; C. multilineata, *Con.*; C. ramosa, *Con.* (DISPOTÆA.)

GALEODIA, *Link.* MORIO, *Mont.*

G. lintea, *Con.*; G. (cassis) Hodgii, *Con.*; (CASSIDARIA.)

STOMATIA, *Browne.*

S. (cryptostoma) perspectiva, *Say*; S. arctata, *Con.*; S. bilix, *Con.*; S. canaliculata, *Sow.*; S. declivis, *Con.*; S. fragilis, *Con.*; S. mississippiensis, *Con.*; (SIGARETUS.)

BUSYEON, *Bolton.*

Linnè confounded *Murex aruanus* with a shell described afterwards by Lamarck under the name of *Fusus proboscidiferus*, by references to figures in Rhumphius and Gualtieri, but his description applies only to the former (*Pyrula carica*, LAM.) The generic name Busyeon founded on this shell has priority over FULGUR.

Busyeon canaliculatum, *Lin.*; B. aruanum, *Gmel.*; B. contrarium, *Con.*; B. coronatum, *Con.*; B. excavatum, *Con.*; B. fusiforme, *Con.*; B. incile, *Con.*;

B. maximum, *Con.*: B. perversum, *Lam.*; B. rugosum, *Con.*; B. tuberculatum, *Con.*; B. gibbosum, *Con.* The last is a recent species. (FULGUR.)

SYCOTYPUS, *Browne.* Ficus, *Bolton.*

S. Mississippiensis, *Con.*; S. (pyrula) penita, *Con.*

PORCELLANA, *Adams.*

P. crassilabra, *Con.*; C. denticulata, *Con.*; C. eburneola, *Con.*; C. larvata, *Con.*; C. limatula, *Con.*: C. perexigua, *Con.*

Recent species. P. P. succinea, *Con.*; P. albilabris, *Con.* (MARGINELLA.)

AMPHICERAS, *Gronovius.*

A. iota, *Con.* (OVULA.)

DISTORTRIX, *Link.*

D. crassidens, *Con.* (TRITON.)

GYRINEUM, *Link.*

G. Maclurii, *Con.* (RANELLA.)

VOLUTILITHES, *Swains.*

V. Sayana, *Con.*; V. petrosa, *Con.* (VOLUTA.)

Swainson includes in this genus the volutes with a callus, as *V. rarispina*, of which I have proposed the genus ATHLETA.

TURRIS, *Humph.*

Gray refers PLEUROTOMA, *Lam.* to this genus, but Hermannsen, TURRITELLA. Where there is no diagnosis, and such discrepancy of opinion exists, TURRIS can hardly be acknowledged.

Notes on Shells, with descriptions of three recent and one Fossil Species.

By T. A. CONRAD.

GNATHODON FLEXUOSUM, *Con.* Amer. Journal of Science and Arts, Vol. 38, p. 93, (figured,) 1840.

G. rostratum, PETIT. 1853. Rev. et Mag. de Zool., p. 552.

G. TRIGONUM, *Petit*, is probably identical with *G. Lecontei*, CON., fossil in California. Journ. Acad. Nat. Sc., Jan., 1853. Petit's description was published July, 1853.

Note on the genus Trigonella, CON.

This name being superseded, I propose to substitute that of PACHYDESMA.

Description of a new Dolium.

D. ALBUM. Oblong-suboval, with convex ribs, which are closely arranged, except on the shoulder; about 18 on the body whorl; spire conical, with rounded volutions, columella perforated at base; lip simple, margin acute.

This species most nearly resembles *D. perdix* in form, but is proportionally much narrower, with the ribs more distant and prominent on the shoulder, and with a channel round the suture which the other does not possess. The spire is less elevated, the species much smaller, and the color nearly white without spots.

Description of a new Conularia.

C. indentata. Elongated, quadrate, tapering very gradually, angles somewhat truncated and crossed by numerous indentations; surface minutely granulated by fine equal decussated lines.

Locality.—Galena, Ill. Mr. Germain.

This species has distant septa, and the middle of each side has an obsolete, slightly impressed, longitudinal line; on the cast there are two carinated approximate lines, with an impressed line on each side of them.

Description of a new Bulimus.

B. lineolatus. Oblong-ovate, thin, slightly umbilicated; whorls 6, smooth; columella reflected, very narrow; lip reflected, very thin and acute; color white and fulvous, variegated, with dark brown stripes, aperture more than half the length of the shell; spire conical.

Inhabits Volcano of Cartago, Costa Rica.

This species approximates *B. pazianus* of D'Orbigny, but is more ventricose, has a shorter spire, broader bands, narrower columella, and the lip is somewhat reflected, which is not a character of the allied species. That shell has the aperture less than half the length of the shell, whilst the other has it more than half its length.

Description of a new Alasmodonta.

Subovate, thin, slightly contracted medially; umbonal slope rounded, slightly ventricose; ligament margin elevated; posterior margin obliquely truncated, the extremity subangulated and much above the line of the base; epidermis olivaceous, with a few obscure rays; cardinal tooth single in the right valve, long, compressed, elevated, triangular; in the left valve widely trifid, the posterior lobe obsolete, and situated posterior to the apex; within bluish. Length 1¼, nearly; height ¾.

Locality.— J. G. Anthony.

Exteriorly this shell closely resembles *U. collinus*, CON., when young and without spines.

Note on the genus AMBLYCHILA, *Say.*

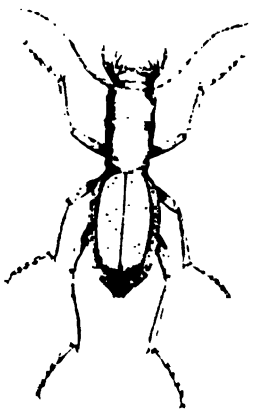
BY JOHN L. LE CONTE, M. D.

In a small bottle of specimens of Coleoptera, collected in New Mexico by Major Sibley, U. S. A., recently sent me through my kind friend Prof. Baird, was fortunately contained a specimen of Amblychila; as some confusion seems still to exist with regard to this very rare insect, a few remarks may not be out of place.

Fort Union is about seventy miles E. N. E. from Santa Fe, and consequently near the base of the Rocky Mountains; it will be remembered that Say's specimen was also obtained near the same chain, although at a point farther north. This fact, as well as the complete agreement of the specimen with Say's description, fixes it as an authentic type of A. cylindriformis. The outline (Plate 1) wood cut appended to this note was made by Mr. W. Van Ingen, from a drawing by G. G. White, and is very accurate in form. It will readily enable the necessary comparison to be made with the Californian specimen described by Mr. Reiche, which I believe was afterwards purchased by Baron Chaudoir.

On comparing the New Mexican specimen with Mr. Reiche's figure, (Am. Ent. Soc. Tr.. vol. 8, pl. 19, also copied into Chenus. Encyc. Hist. Nat.) several important differences may be perceived: the head and thorax of his is proportionally narrower, and in the enlarged figure of the head, the labrum is represented as having a quite prominent tooth each side of the emarginate medial prolongation, and the lateral angles are rounded; in mine, the labrum each side of the prolongation is merely slightly sinuous, and the lateral angles are rectangular, so that the general outline each side of the middle is decidedly concave. The large punctures in the side figure seem to form a regular series between the costa and the suture, while in mine they are distributed irregularly.

In comparison with the description given by Mr. Reiche (l. c. p. p. 560), I have only to say, that my specimen shows a quite decided brownish tinge on the elytra, while the Californian specimen is described as entirely black; and that the smaller punctures of the elytra are by no means obsolete. Mr. Reiche's remark in the generic description, that the basal tooth of the mandibles is bifid, applies only to the right mandible: that of the left side has, it is true, a corresponding prominence, but it is so small and so far back, as not to alter the outline in any way, and therefore Mr. Reiche's observation tends to produce confusion.



Amblycheila cylindriformis Say.

I should not at all hesitate, therefore, to consider the Californian A. Piccolominii as distinct from Say's species, were it not for the preposterous collar which, in Mr. Reiche's figure, is appended to the base of the thorax, and for the very inaccurate representations given by his draughtsman of the two species of Omus found in Oregon, (l. c. 7, pl. 10.) Such figures might be excusable in America, where artists have not yet turned their attention to objects requiring such accuracy of delineation, but in parts of Europe where accurate figures have been made, and as the yearly accessions to our scientific libraries show can still be made, such figures as those published in the Annales above quoted, of Amblychila and Omus, are hardly to be commended.

Having found near San Francisco, in California, some specimens of Omus californicus Esch., I avail myself of the present occasion to remark, that it is very closely allied to O. Audouini *Reiche*, and in fact only differs by having the head and thorax very densely and deeply wrinkled, and the punctures of the elytra more equal in size: the appearance of rows of punctures given in the very wretched figure accompanying Eschscholtz' description (Zool. Atl. tab. 4, fig. 1,) and copied by Reiche (l. c. sup) is hardly apparent.

The epipleuræ in Omus are narrow, and defined by an acute line, which unites with the margin near the apex of the elytra. In Amblychila the epipleuræ are broad, and the defining elevated line becomes obsolete about one-fifth from the tip. The discoidal costa is about the same length: the intermediate costa (called by Say the marginal elevated line) is more elevated, and extends to about one-seventh from the tip: the smaller punctures of the elytra become effaced towards the tip, and the large ones (each of which bears a small elevated point,) are somewhat more numerous.

The references to this genus are: to the New Mexican and Nebraska one, *Amblychila cylindriformis* Say., Trans. Am. Phil. Soc. 4, 409; Reiche Ann. Ent. 7. *Manticora Cylind.* Say, J. Ac. Nat. Sc. 3, 139.

And to the Californian one: *Amblychila Piccolominii* Reiche, Ann. Ent. Tr. 8, 560, tab. 19; Mann. Bull. Mosc. 1844, 183. *A. cylindriformis* Lacordaire, Mem. Soc. Roy. Sc. Liége, 1, 95.

The Committee appointed to make arrangements for the celebration of the Anniversary of the foundation of the Society, reported that an Address had been delivered on Monday evening, 20th inst., at the Hall of the University by Wm. Parker Foulke, Esq., and that on the evening of the 21st inst., a large number of members and correspondents, and a few invited guests, dined together at the Hall of the Musical Fund Society.

The Report of the Corresponding Secretary was read and adopted.

The following resolutions offered by Dr. Zantzinger, were unanimously adopted:

Resolved, That the thanks of the Academy be presented to Wm. Parker Foulke, Esq., for the able, eloquent and highly appropriate address, delivered by him at the Hall of the University, on Monday evening 20th inst., in commemoration of the founding of the Institution.

Resolved, That a committee of three members be appointed to request a copy of the Address for publication.

Whereupon the following members were appointed the Committee: Dr. Zantzinger, Mr. Aubrey H. Smith and Mr. Wm. S. Vaux.

Dr. J. C. Fisher offered the following, which was unanimously adopted.

Resolved, That the thanks of the Academy be presented to the Committee of Arrangements for celebrating the Anniversary of the found-

ing of the Society, for the excellent manner in which they discharged their duties.

On motion of Mr. Lea, the thanks of the Society were also ordered to be presented to the Trustees of the University, for the use of the Hall on the evening of the 20th inst.

ELECTION.

Mr. Clayton T. Platt, Mr. Jas. Engle Negus and Constant Gillou, Esq., of Philadelphia, were elected *Members*.

April 4th.

Vice-President BRIDGES in the Chair.

Letters were read,

From the Society of Natural History of Cherbourg, dated 28th Oct. 1853, transmitting the 1st vol. of its Memoirs, and asking an exchange.

From the Scientific Commission of the Zoological Garden of Amsterdam, dated Nov. 1843, transmitting its Memoirs.

From the Trustees of the New York State Library, dated Albany, 22d March, 1854, acknowledging the receipt of the Proceedings to complete vol. 6, and No. 1, vol. 7.

From Prof. Haldeman, addressed to the Corresponding Secretary, dated Columbia, Penn., 29th March, 1854, as follows:

"I find that the Limnadella described by Mr. Girard, Proceed. Acad. vol. 7, page 3, is my *Limnadia coriacea*, ib. 1, 184, for June, 1842. At that time I doubted the propriety of placing it in Limnadia, chiefly on account of the dorsal tubercles mentioned in my description, but I had no means of making the necessary comparisons. It was discovered in great abundance in a road-side puddle, subject to desiccation, and although I removed a number of them to a small pond, I have never met with them since."

Dr. Le Conte presented a paper, for publication in the Proceedings, entitled "Synopsis of the species of Platynus and allied genera, inhabiting the United States." Referred to Dr. Leidy, Dr. Zantzinger and Mr. Foulke.

A paper was presented for publication in the Proceedings, entitled "Descriptions of new species of North American Ranæformes and Hylæformes in the Museum of the Smithsonian Institution, by Spencer F. Baird." Referred to Dr. Hallowell, Dr. Le Conte and Dr. Leidy.

On motion of Mr. Vaux, it was *Resolved*, That a complete set of the Publications of the Academy be forwarded to the Portland Society of Natural History, Portland, Maine.

April 11th.

The President, Mr. ORD, in the Chair.

A letter was read from the Academy of Naturalists of Breslau, dated 18th Nov. 1853, acknowledging the receipt of the Proceedings, vol. 6, Nos. 3—8, and of Journal No. 3, vol. 2, new series.

Also a letter from Geo. W. Carpenter, Esq., dated April 11th, 1854, presenting a copy of Livingston's Memoirs of eminent Americans.

Dr. Leidy read a paper from Mr. J. W. Dawson, of Pictou, N. S., entitled "On Fossil Coniferous wood from Prince Edward's Island;" which was referred to Dr. Leidy, Mr. Foulke and Mr. Isaac Lea.

Mr. Cassin presented a paper from W. Dudley, Esq., of Madison, Wisconsin, describing a species of Crane found in Wisconsin, and presumed to be new; which was referred to Mr. Cassin, Col. McCall and Dr. Wilson.

Mr. Cassin also presented two papers from Dr. Alfred T. King, of Greensburg, Pennsylvania, severally entitled "Description of fossil trees found in the Coal Rocks near Greensburg, Pa.," and "Description of a fossil Fruit found in the carboniferous rocks of Beaver Co., Penn.;" both of which were referred to Mr. Cassin, Mr. Aubrey H. Smith and Dr. Bridges.

Dr. Leidy exhibited drawings representing lateral and inferior views of the restored skull of Oreodon Culbertsonii, from the Eocene of Nebraska.

April 18th.

WM. PARKER FOULKE, Esq., in the Chair.

A letter was read from Dr. Charles Enderlin, of New York, dated 31st March, 1854, acknowledging the receipt of his notice of election as a Correspondent.

A letter was also read from the Lyceum of Nat. History of New York, dated April 4th, 1854, acknowledging the receipt of late Nos. of the Proceedings.

Mr. Cassin presented a paper for publication in the Proceedings, entitled "Notes on Birds observed in Texas, and in the States of Neuva Leon, Tamaulipas and Coahuila, Mexico, with descriptions of new species; by D. N. Couch, U. S. Army." Referred to Dr. Le Conte, Mr. Cassin and Col. McCall.

Dr. Leidy exhibited a specimen of the restored upper jaw of the Titanotherium Proutii, of Nebraska.

April 25th.

Vice-President BRIDGES in the Chair.

The Committees to which were referred papers, read April 4th by Dr. Le Conte and Prof. S. F. Baird; April 11th, by Mr. J. W. Dawson, of Pictou, N. S.; by Mr. Wm. Dudley, of Madison, Wisconsin; by Dr. Alfred T. King, of Greensburg, Pennsylvania; April 18th, by Lieut. D. N. Couch, U. S. A., severally reported in favor of publication in the Proceedings.

Synopsis of the species of Platynus and allied genera, inhabiting the United States.

By JOHN L. LE CONTE, M. D.

The species of the small group of Carabica, herein examined, are quite frequently so closely related, as to be with difficulty separated; some synonymy too has been produced by the want of sufficient bibliographical knowledge on the part of those who have investigated these genera. To lessen in some degree

the difficulty now resting over the subject, I have thought that a series of original descriptions of all the species known to me, based upon a careful comparison of their specific characters, might remove some of the obstacles encountered from the different style of the descriptions of different authors. I do it the more gladly, as an opportunity is thus afforded me of correcting many important errors into which I was led, in some of my earlier writings, by the haste and inexperience of youth, from the effects of which it falls to the lot of only the most favored of men to escape.

The reader will find, in some portions of this essay, a further development of the principle announced by me in a synopsis of Silphales, (Proc. Acad. 6, 275,) illustrated in a genus, of which the species are very numerous; these species form small groups, according to their respective affinities, and in general the limits of each species are marked by well defined organic differences. But in some of the groups, occur forms so closely allied as to present, with a large series of specimens, almost imperceptible differences, by which sets of specimens, at first sight readily recognized and separated, become linked together. These variations (in form, not color) are frequently seen to be constant in those found in one locality, and in the present condition of science, would seem to indicate positively the origin at different points, or at various points intermixed together, of organic forms, so closely related as not to present sufficient differences to be regarded as ordinary species.

Thus it is that Nature who, not only between her works, but between her processes, continually displays gradations of sublime harmony, reveals to us some of the steps between those genera in which absolutely distinct species are found in restricted localities, and those in which absolutely the same species are found widely distributed.

The genera known to me with the exception of a single new one, have been fully described in other works, and may be thus arranged:

Mentum dente bicuspi; ungues plus minusve serrati:	
Paraglossæ ligula non longiores	Calathus.
Paraglossæ longiores, ultra ligulam extensæ . .	Pristodactyla.
Mentum dente simplici; ungues simplices:	
Paraglossæ ligula longiores	Anchus.
Paraglossæ ligula non longiores:	
Antennæ articulo 3io sequente sesqui longiore .	Rhadine.
Antennæ articulo 3io sequente subæquali . .	Platynus.
Mentum dente nullo	Olisthopus.

CALATHUS Bon.

1. C. gregarius, longiusculus, piceus, nitidus, apterus, thorace latitudine fere longiore antice subangustato, lateribus testaceis late rotundatis, margine postice latiore reflexo, basi utrinque paulo impresso, elytris striis tenuibus profundis, punctis tribus impressis, antennis palpis pedibusque testaceis. Long. 4.

Dej. Sp. Gen. 3, 76; Kirby, Fauna Bor. Am. 29.

Feronia gregaria Say, Trans. Am. Phil. Soc. 2, 47.

Calathus distinguendus Lec. Proc. Acad. Nat. Sc. 2, 53. Ann. Lyc. 4, 216.

A common species in the Middle and Eastern States, and is found occasionally at Lake Superior. The North American species of this genus are very closely allied, and seem hardly worthy of being separated; nevertheless, the three species recognized by me in the Atlantic portion of the continent, are as well distinguished from each other as from those of the Pacific coast. This one will be readily recognized by the shining lustre and the moderately broad reflexed lateral margin of the thorax; in the next species the lateral margin is narrower, perceptibly depressed, and not at all reflexed towards the posterior angles. For authentic specimens of this species I am indebted to Dr. Harris.

2. C. confusus, longiusculus, piceus pernitidus, apterus, thorace latitudine sublongiore, antice subangustato, lateribus testaceis late rotundatis margine angusto postice vix depresso, subreflexo, basi utrinque paulo impresso, elytris

striis tenuibus profundis, punctis tribus impressis, antennis palpis pedibusque testaceis. Long. ·31—·35.

Lake Superior; abundant. Very similar to the preceding, but a little narrower in its form, and with the lateral margin of the thorax not distinctly wider towards the posterior angles, and less reflexed.

3. C. opaculus, longiusculus, piceus, thorace latitudine non longiore, antice subangustato, lateribus testaceis latius subdepressis, non reflexis, basi utrinque paulo impresso, elytris fere opacis, striis tenuibus haud profundis, punctis tribus impressis, antennis palpis pedibusque testaceis. Long. ·35—·42.

Middle, Southern and Western States; rare. This species, with the form of C. gregarius, has the dull elytra and finely impressed striæ of C. ruficollis; it seems also sufficiently distinct from the preceding species, by the sides of the thorax being depressed, broader behind and not reflexed.

4. C. quadricollis, longiusculus, piceus, apterus, thorace latitudine non breviore, antice vix angustato utrinque subimpresso, elytris fere opacis, striis tenuibus non profundis, punctis 3 vel 4 impressis, antennis palpis pedibusque testaceis. Long. ·27—·4.

San Francisco, California. This species is narrower than C. ruficollis, and is readily distinguished by the form of the thorax; the thorax and head have a reddish tinge, but do not appear ever to reach the deep, dull rufous color observed in C. ruficollis.

5. C. ruficollis, latiusculus, piceus, apterus, capite thoraceque piceo-rufis, hoc latitudine breviore, antice angustato, lateribus (præsertim antice) rotundatis, margine minus distincte depresso subreflexo, basi utrinque subimpresso, elytris fere opacis striis tenuibus, punctis 3 impressis, antennis palpis pedibusque rufo-testaceis. Long. ·35—·4.

Dej. Sp. Gen. 3, 78; Mann. Bull. Mosc. 1843, 195.

San Francisco and San Diego. Considerably wider than any of the preceding species, and with the sides of the thorax anteriorly more rounded; the sides converge a little near the base, whereby the posterior angles are rendered less rectangular than in those above described. This species and the preceding, frequently subject travellers to great annoyance by crawling over their bodies at night, when sleeping on the ground; the multitudes which are seen in March and April, under every object capable of affording them shelter, are worthy of admiration.

6. C. obscurus, minus elongatus, piceus, apterus, thorace latitudine non breviore, antrorsum angustato, lateribus rotundatis (angulis basalibus obtusioribus) margine depresso subreflexo, basi utrinque subimpresso, elytris fere opacis, striis tenuibus non profundis, punctis tribus impressis, antennis palpis pedibusque rufo-testaceis. Long. ·4.

One female found in the Southern part of California. This species differs from C. ruficollis and C. quadricollis by the form of the thorax, which is not wider than long, considerably narrowed in front and moderately rounded on the sides, which are distinctly depressed even to the base, and hardly reflexed. The elytra are more distinctly wider than the thorax, but otherwise are formed and sculptured as in C. ruficollis.

Pristodactyla Dej.

1. P. impunctata, nigra, nitida, thorace leviter obovato, latitudine non breviore, angulis posticis rotundatis, lateribus margine anguste reflexo, basi utrinque late foveato, elytris thorace latioribus, pone medium paulo dilatatis, striis profundis, bipunctatis, antennis palpis pedibusque rufis, unguibus valde serratis. Long. ·35—·42.

Lec. Ann. Lyc. 4, 217.

Feronia impunctata Say, Trans. Am. Phil. Soc. 2, 45.

Pristodactyla americana Dej. Sp. Gen. 3, 83.

Middle States; rare. Smaller than the next, and distinguished by the thorax

Description of a new Bulimus.

B. lineolatus. Oblong-ovate, thin, slightly umbilicated; whorls 6, smooth; columella reflected, very narrow; lip reflected, very thin and acute; color white and fulvous, variegated, with dark brown stripes, aperture more than half the length of the shell; spire conical.

Inhabits Volcano of Cartago, Costa Rica.

This species approximates *B. pazianus* of D'Orbigny, but is more ventricose, has a shorter spire, broader bands, narrower columella, and the lip is somewhat reflected, which is not a character of the allied species. That shell has the aperture less than half the length of the shell, whilst the other has it more than half its length.

Description of a new Alasmodonta.

Subovate, thin, slightly contracted medially; umbonal slope rounded, slightly ventricose; ligament margin elevated; posterior margin obliquely truncated, the extremity subangulated and much above the line of the base; epidermis olivaceous, with a few obscure rays; cardinal tooth single in the right valve, long, compressed, elevated, triangular; in the left valve widely trifid, the posterior lobe obsolete, and situated posterior to the apex; within bluish. Length 1¼, nearly; height ⅝.

Locality.— J. G. Anthony.

Exteriorly this shell closely resembles *U. collinus*, CON., when young and without spines.

Note on the genus AMBLYCHILA, *Say.*

BY JOHN L. LE CONTE, M. D.

In a small bottle of specimens of Coleoptera, collected in New Mexico by Major Sibley, U. S. A., recently sent me through my kind friend Prof. Baird, was fortunately contained a specimen of Amblychila; as some confusion seems still to exist with regard to this very rare insect, a few remarks may not be out of place.

Fort Union is about seventy miles E. N. E. from Santa Fe, and consequently near the base of the Rocky Mountains; it will be remembered that Say's specimen was also obtained near the same chain, although at a point farther north. This fact, as well as the complete agreement of the specimen with Say's description, fixes it as an authentic type of A. cylindriformis. The outline (Plate I) wood cut appended to this note was made by Mr. W. Van Ingen, from a drawing by G. G. White, and is very accurate in form. It will readily enable the necessary comparison to be made with the Californian specimen described by Mr. Reiche, which I believe was afterwards purchased by Baron Chaudoir.

On comparing the New Mexican specimen with Mr. Reiche's figure, (Am. Ent. Soc. Tr., vol. 8, pl. 10, also copied into Chenus. Encyc. Hist. Nat.) several important differences may be perceived: the head and thorax of his is proportionally narrower, and in the enlarged figure of the head, the labrum is represented as having a quite prominent tooth each side of the emarginate medial prolongation, and the lateral angles are rounded; in mine, the labrum each side of the prolongation is merely slightly sinuous, and the lateral angles are rectangular, so that the general outline each side of the middle is decidedly concave. The large punctures in the side figure seem to form a regular series between the costa and the suture, while in mine they are distributed irregularly.

In comparison with the description given by Mr. Reiche (l. c. p. p. 560), I have only to say, that my specimen shows a quite decided brownish tinge on the elytra, while the Californian specimen is described as entirely black; and that the smaller punctures of the elytra are by no means obsolete. Mr. Reiche's remark in the generic description, that the basal tooth of the mandibles is bifid, applies only to the right mandible: that of the left side has, it is true, a corresponding prominence, but it is so small and so far back, as not to alter the outline in any way, and therefore Mr. Reiche's observation tends to produce confusion.

sinuate; the striæ are deep and moderately punctured, the intervals are narrow, convex, and are each marked with a row of very fine punctures, from which proceed very short hairs.

The legs are moderately long, the anterior tibiæ scarcely dilated at the apex, with the emargination extending nearly to the middle; in the male the first three joints of the anterior tarsi are very slightly dilated, and furnished beneath with a few papillæ. The antennæ are very slightly thickened externally; the first three joints and the base of the fourth are smooth, but furnished with a few scattered hairs; the first is longer than the third, and somewhat thicker than in the other genera of this group. The paraglossæ are narrow, curved, and longer than the truncate ligula; the tooth in the emargination of the mentum is moderately large, and almost acute at the tip. The palpi are slender and moderately long; the last joint is elongate oval, and almost acute at the tip; that of the maxillary palpi is distinctly longer than the penultimate joint.

It seems by its characters closely to approach Stomis, but the mandibles are not so long and the labrum is not at all emarginate. By the structure of the anterior tibiæ as well as by the sexual characters, it evidently belongs to the present group.

1. A. pusillus, niger, nitidus, parce breviter pubescens, capite parce punctato, thorace latitudine longiore, convexo, cordato, postice constricto, angulis posticis rectis, disco obsoletius basi et apice distinctius punctatis, elytris thorace duplo latioribus oblongis convexis, profunde striatis interstitiis convexis uniseriatim punctulatis, piceis lateribus late rufescentibus, antennis palpis, pedibusque rufis. Long. ·25.

'*Stomis americanus* Lap.' Lec. Ann. Lyc. 4, 356.

Platynus pusillus‡ Harris, MSS.

Massachusutts, Dr. Harris; Illinois, Mr. Willcox. Finding in this insect many of the characters of Stomis, I was misled by the very poor description of Mr. Laporte, (Etudes Entom. 1, 72) with which it agrees as closely as could be expected, in every respect except size. Baron Chaudoir, as I have already observed in my synopsis of Pterostichus, (Journ. Acad. Nat. Sc., 2d ser., 2,) has since stated that Mr. Laporte's insect is *Feronia fastidita* Dej. Under these circumstances, the specific name adopted by me under error falls, and I take pleasure in giving to the insect the name under which it was communicated to me by Dr. Harris.

Rhadine Lec.

This genus only differs essentially from Platynus by the greater length of the third joint of the antennæ, which is one half longer than the fourth joint; the first joint is short, being about one-half longer than the second. The form of body is that of the first division of Platynus, but the margins of the thorax and elytra are more broadly reflexed, and the elytra are strongly sinuate at the apex; the antennæ and feet are also longer. These characters give the insect a considerable resemblance, in general appearance, to Anophthalmus.

1. R. larvalis, pallide rufo-picea, nitida, thorace cordato-ovali, postice valde angustato, valde reflexo-marginato, angulis posticis rectis, elytris fere ellipticis, dorso planiusculis, fortiter marginatis, apice sinuatis, obsolete striatis, subtiliter tripunctatis. Long. ·41.

Le Conte, Ann. Lyc. 4, 219.

One specimen (male) found near St. Louis, Missouri, was kindly given my by Dr. Engelmann. In the State of Ohio, Dr. Schaum procured a dark brownish black specimen, in which the sinus of the elytra was so strong, as to form on each side of the apex a tooth; the specimen was a female, but not having it before me for examination, I cannot determine whether the difference is to be regarded as sexual or specific.

Platynus Bon. (emend. Brullé.)

Under this generic name I group, after the example of Mr. Brullé, those spe-

g. Pedes testacei, vel rufi; thorax convexus tenuiter marginatus. Sp. 32—33.

E. Corpus alatum, gracile; thorax ovalis, vel leviter cordatus, tenuius marginatus; elytra tripunctata; pedes plus minusve testacei. Sp. 34—40.

F. Corpus alatum, gracile, præcipue elongatum; thorax ovalis; elytra multipunctata; pedes plus minusve testacei. Sp. 41—48.

G. Corpus alatum; thorax rotundatus, tenuissime marginatus; elytra foveata. Sp. 49.

H. Corpus alatum, minus gracile, thorax præcipue rotundatus (præcipue tenuiter marginatus) impressionibus basalibus latis, minus profundis; elytra multipunctata.

h. Corpus elongatum metallicum, pedes concolores. Sp. 50—51.

i. Corpus minus elongatum subgracile, pedes plus minusve testacei. Sp. 52—54.

k. Corpus robustius, angulis thoracis posticis fere distinctis. Sp. 55—56.

I. Corpus alatum, fere gracile, elytra oblonga, basi valde emarginata, apice fere truncata; elytra vel tripunctata, vel quadrifoveata. Sp. 57—61.

The cases of difficulty, in referring species by this table, will be but few; a species (P. quadratus) is placed in (f.,) which might, with almost equal propriety, be placed with (d.); still, the form is less slender, and the margin of the thorax much more obvious than in the latter group.

P. crenulatus in group (F.) differs from the others of the same group, by the broader and more quadrate elytra; still, its chief affinities appear to be with that group, and I have, therefore, not separated it from its allies.

A.

The species of this group are of a slender form and not winged; the legs and antennæ are long; the thorax is obovate, usually elongate; the posterior angles are obtuse and rounded at the apex; the lateral margin is strongly reflexed, and is broader than usual. The elytra are regularly elliptical, with no distinct humeral angles; they are sinuate towards the tip; the lateral margin is broader than in any other group, and is strongly reflexed. This group corresponds to Platynus of Bonelli and Dejean.

1. P. fragilis, piceus, thorace latitudine fere longiore obovato, fortius marginato, angulis posticis obtusis, subrotundatis, basi transversim profunde impresso, elytris ellipticis, thorace duplo latioribus, fortius marginatis, tenuiter striatis, 3-punctatis, antennis versus apicem subincrassatis. Long. ·34.

Found in the mountains near Santa Isabel, in the southern part of California. One specimen has four impressed punctures on the elytra. The antennæ, instead of being setaceous, as in the next two species, are slightly thickened beyond the fourth joint, as in most of the species of this genus.

2. P. hypolithos, niger nitidus, thorace latitudine fere longiore, obovato, fortiter marginato, angulis posticis obtusis rotundatis, basi transversim profunde impresso, utrinque longius sat profunde impresso, elytris thorace duplo latioribus ellipticis fortius marginatis, striis modice profundis, interstitiis convexis 2, 4 et 6to juxta striis biseriatim irregulariter punctatis, antennis setaceis palpis pedibusque ferrugineis. Long. ·55.

Feronia hypolithos Say, Trans. Am. Phil. Soc. 2, 59.

Platynus erythropus Dej. Sp. Gen. 3, 97.

Middle and Western States, in the vicinity of mountains. Besides the punctures mentioned, there are several on the sutural stria before the middle. Dejean's description is very full, but lest any entomologist should hesitate in referring this species to the description given by Say, which is certainly defective in some particulars, I transcribe it to save the labor of future reference.

"Apterous, black, glabrous: feet rufous; striæ of the elytra punctured. Length more than 11-20th of an inch.

"Antennæ dark piceous; palpi rufo-piceous. Thorax narrowed behind, dorsal

ing of the Society, for the excellent manner in which they discharged their duties.

On motion of Mr. Lea, the thanks of the Society were also ordered to be presented to the Trustees of the University, for the use of the Hall on the evening of the 20th inst.

ELECTION.

Mr. Clayton T. Platt, Mr. Jas. Engle Negus and Constant Gillou, Esq., of Philadelphia, were elected *Members*.

April 4th.

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Also a letter from Geo. W. Carpenter, Esq., dated April 11th, 1854, presenting a copy of Livingston's Memoirs of eminent Americans.

Dr. Leidy read a paper from Mr. J. W. Dawson, of Pictou, N. S., entitled "On Fossil Coniferous wood from Prince Edward's Island;" which was referred to Dr. Leidy, Mr. Foulke and Mr. Isaac Lea.

Mr. Cassin presented a paper from W. Dudley, Esq., of Madison, Wisconsin, describing a species of Crane found in Wisconsin, and presumed to be new; which was referred to Mr. Cassin, Col. McCall and Dr. Wilson.

Mr. Cassin also presented two papers from Dr. Alfred T. King, of Greensburg, Pennsylvania, severally entitled "Description of fossil trees found in the Coal Rocks near Greensburg, Pa.," and "Description of a fossil Fruit found in the carboniferous rocks of Beaver Co., Penn.;" both of which were referred to Mr. Cassin, Mr. Aubrey H. Smith and Dr. Bridges.

Dr. Leidy exhibited drawings representing lateral and inferior views of the restored skull of Oreodon Culbertsonii, from the Eocene of Nebraska.

April 18th.

WM. PARKER FOULKE, Esq., in the Chair.

A letter was read from Dr. Charles Enderlin, of New York, dated 31st March, 1854, acknowledging the receipt of his notice of election as a Correspondent.

A letter was also read from the Lyceum of Nat. History of New York, dated April 4th, 1854, acknowledging the receipt of late Nos. of the Proceedings.

Mr. Cassin presented a paper for publication in the Proceedings, entitled "Notes on Birds observed in Texas, and in the States of Neuva Leon, Tamaulipas and Coahuila, Mexico, with descriptions of new species; by D. N. Couch, U. S. Army." Referred to Dr. Le Conte, Mr. Cassin and Col. McCall.

Dr. Leidy exhibited a specimen of the restored upper jaw of the Titanotherium Proutii, of Nebraska.

April 25th.

Vice-President BRIDGES in the Chair.

The Committees to which were referred papers, read April 4th by Dr. Le Conte and Prof. S. F. Baird; April 11th, by Mr. J. W. Dawson, of Pictou, N. S.; by Mr. Wm. Dudley, of Madison, Wisconsin; by Dr. Alfred T. King, of Greensburg, Pennsylvania; April 18th, by Lieut. D. N. Couch, U. S. A., severally reported in favor of publication in the Proceedings.

Synopsis of the species of Platynus and allied genera, inhabiting the United States.

By JOHN L. LE CONTE, M. D.

The species of the small group of Carabica, herein examined, are quite frequently so closely related, as to be with difficulty separated; some synonymy too has been produced by the want of sufficient bibliographical knowledge on the part of those who have investigated these genera. To lessen in some degree

elytris oblongo-ovalibus, apice sinuatis, leviter striatis, punctis tribus minutis impressis, antennis pedibus, thoracis elytrorumque margine rufo-brunneis. Long. 4½ lin. lat. 1⅓ lin."

With regard to the value of the first word of this diagnosis, I will merely observe that it occurs also in Count Mannerheim's diagnosis of *Anch. maculicollis* (l. c. 199,) which, however, I found at San Diego, in July, flying about in the evening twilight in such numbers as to be a source of great annoyance.

B—c.

The species of this group are moderately large, winged, and a pure shining black color; the thorax is slightly cordiform, with the posterior angles rectangular; the dorsal line and anterior transverse impression are deep; the basal impressions are large, moderately deep and finely punctulate; the lateral margin is moderate and is strongly reflexed, and slightly diaphanous in a strong light. The elytra are more than one half broader than the thorax, truncate at base, slightly sinuate at the extremity; they are somewhat flattened on the disc, and declivous towards the margin; the striæ are deep, and the third interstice has three impressed punctures.

I regret to be partly answerable for the confusion introduced among the species of this group, by mistaking those which have been already described, and incautiously admitting some which are not sufficiently distinct. Having carefully re-examined the subject, I hope that the results, here arrived at, may be found correct.

10. P. d e c e n s, niger, subnitidus, alatus, thorace postice subangustato, lateribus postice vix sinuatis, angulis posticis non prominulis, impressionibus basalibus dilatatis punctulatis, elytris magis deplanatis, tripunctatis, striis profundis obsolete punctulatis. Long. ·5—·56.

Lec. Agassiz' Lake Superior, 205.

Feronia decentis Say, Trans. Am. Phil. Soc. 2, 53.

Anchomenus gagates Dej. Sp. Gen. 3, 107.

Anchomenus decentis Say, Trans. Am. Phil. Soc. 4, 421.

Anchomenus coracinus Lec. Ann. Lyc. 4, 220. (Descriptio nequam.)

Middle and Southern States; not common. The description last cited was made from a badly preserved specimen, in which the wings had probably been pulled off to enable the elytra to be brought together; at least, on raising the elytra, I find fragments of the wings still remaining. The distinctive characters of the species are the larger size, the less distinct posterior angles of the thorax, (which are almost obtuse and very slightly rounded,) and the less lustrous and more flattened elytra. The fine punctures of the striæ are sometimes almost invisible. Dejean mentions four elytral punctures; the second one, however, is abnormal.

11. P. s i n u a t u s, niger, nitidus, alatus, thorace latitudine subbreviore postice subangustato, lateribus postice vix sinuatis (basi apice sublatiore) angulis posticis vix prominulis, impressionibus basalibus dilatatis, punctulatis, elytris paulo convexis, bipunctatis, striis modice profundis, punctulatis. Long. .4—·5.

?Anchomenus sinuatus Dej. Sp. Gen. 3, 108. Lec. Ann. Lyc. 4, 220.

Middle States and Lake Superior. I am somewhat doubtful whether this is really Dejean's species. He says, in comparison, with the preceding, "le corselet est a peu près de la même forme; seulement les bords latéraux sont un peu moins largement déprimés." This difference, if it exists, is by no means obvious. The only satisfactory characters I can find are the smaller size, the more shining, less depressed and less deeply striate elytra.

α. Thorace postice magis angustato, lateribus postice subsinuatis, angulis posticis subprominulis.

Anchomenus depressus Hald. Proc. Acad. Nat. Sc. 1, 299. Lec. Ann. Lyc. 4, 221.

Platynus depressus Lec. Agassiz' Lake Superior.

Western States and Lake Superior. The difference in the form of the thorax

is quite perceptible, yet, as there are forms almost intermediate, and no other character can be seen to separate it from the preceding, I think it expedient to arrange it as one of the *races* of P. sinuatus.

β. Thorace latitudine non breviore, postice angustato, et lateribus longius sinuato, angulis posticis paulo prominulis; impressionibus basalibus profundioribus.

Middle States and Lake Superior. Although the difference between this and P. sinuatus seems very considerable, in a large series of the form (*x*) they seem to disappear; I have therefore hesitated to propose a new name for this, and consider it, like the previous one, as a race under P. sinuatus.

C—d.

A group containing winged species, evidently allied to P. extensicollis &c., but differing by having only three elytral punctures; the feet and antennæ are entirely black. The thorax is flattened, moderately margined, the margin growing broader towards the base; it is almost longer than wide, very slightly narrowed posteriorly, hardly sinuate on the sides, truncate at base, with the posterior angles rectangular, not rounded; the basal impressions are very long and finely rugous; the elytra are flattened, truncate at base, slightly sinuate at apex; the striæ are deep and fine, the interstices flattish, the 3d with three impressed punctures; the antennæ are filiform.

12. P. funebris, cyanescenti-niger, thorace latitudine non breviore, postice subangustato, et lateribus subsinuato, angulis posticis rectis, basi utrinque longius impresso, et confertim ruguloso, elytris opacis thorace duplo latioribus parum convexis, striis subtilibus interstitiis planis, 3io tripunctato. Long. .4.

San Diego, California; abundant in almost dry water courses. Very distinct from all other species found within our territories.

13. P. æneolus, subtus nigro-virescens, capite thoraceque obscure viridi-æneis, hoc latitudine non breviore, postice subangustato, lateribus late rotundatis, angulis posticis rectis, basi utrinque longius impresso, et confertim ruguloso, elytris planiusculis purpureo-nigris, nitidis, tripunctatis, striis tenuibus, profundis, interstitiis vix convexis. Long. .4.

One specimen; Oregon. Also sufficiently distinct from all our other species.

C—e.

A group of extreme complexity, containing winged species of metallic colors, bluish or greenish, with the base of the antennæ, the feet, and occasionally the thorax rufous or pale piceous. The antennæ are long and filiform; the thorax is occasionally a little longer than wide, never much narrowed posteriorly, the margin fine, but strongly reflexed, moderately rounded on the sides; the base is oblique each side, and the posterior angles are obtuse and sometimes moderately rounded; the basal impressions are long, and posteriorly are marked with a short line. The elytra are elongate, about twice as wide as the thorax, scarcely sinuate posteriorly, striæ deep, but usually fine, the interstices hardly convex, the third with four to seven punctures, varying in the same species. By arranging the different forms as races under the more distinct species, this group appears to be capable of being reduced to order.

14. P. extensicollis, supra æneo-viridis, nitidus thorace latitudine longiore, postice paulo angustato, angulis posticis vix rotundatis, basi punctulata, impressionibus basalibus tuberculo parum elevato intructis, elytris striis subtiliter obsolete punctulatis, interstitio 3io 4—7 punctato, antennarum basi pedibusque rufis. Long. .31—.39.

Lec. Agassiz' Lake Superior, 205.

Feronia extensicollis Say, Trans. Am. Phil. Soc. 2, 54.

Feronia (Anchomenus) proximus Harris, New England Farmer, 1825, p. 132.

Anchomenus extensicollis Dej. Sp Gen. 3, 113.

Agonum (Anchomenus) extensicollis Kirby, Fauna Bor. Am. 24.

Middle, Southern, and Western States and Lake Superior; Massachusetts. Dr. Harris; (lat. 54° according to Kirby.) This is usually considered as the type of Say's species, and is distinguished by the shining color, by the thorax being more distinctly narrowed posteriorly, with less rounded angles, and by the tubercle between the basal impression and the angle being distinct. The punctures of the base are fine, occasionally extending along the whole base, but sometimes visible only in the impressions. The color of the elytra sometimes varies towards bluish and coppery. The under surface is black.

α. Æneus, nitidus, thorace latitudine paulo breviore, postice angustato angulis posticis rotundatis, impressionibus basalibus tuberculo indistincto instructis. Long. ·39.

Anchomenus obscuratus Chaud. Bull. Mosc. 1843, 763.

'*Anchomenus elongatulus* Dej.' Lec. Ann. Lyc. 4, 222.

Middle States and Lake Superior.

β. Læte viridi-æneus, nitidus, thorace latitudine non breviore, postice subangustato, basi late rotundata, angulis posticis rotundatis, impressionibus basalibus tuberculo distincto instructis. Long. ·39.

One specimen from Lake Superior, which differs from the type by the thorax being much less narrowed posteriorly, with the posteriorly angles more rounded.

γ. Viridi-æneus, subnitidus, thorace latitudine longiore, postice subangustato, angulis posticis subrotundatis, impressionibus basalibus tuberculo nullo. Long. ·35—·39.

Anchomenus viridis Lec. Ann. Lyc. 4, 222.

Western States; a specimen was sent me by Dr. Harris, as Anch. extensicollis *Say*.

δ. Cyaneus, subnitidus, thorace latitudine longiore, postice vix angustato, angulis posticis subrotundatis, impressionibus basalibus tuberculo nullo, elytris striis profundioribus, haud punctulatis. Long. ·34.

Northern Sonora, near the Gila River. Resembles (γ) except in color; the striæ of the elytra are, however, deeper and not at all punctulate.

ε. Capite thoraceque æneo-viridibus, hoc latitudine vix longiore, postice subangustato, angulis posticis fere rotundatis, impressionibus basalibus tuberculo distincto instructis, elytris cyaneis, striis profundioribus obsolete punctulatis. Long. ·35.

One specimen found with the preceding.

15. P. simplex, supra æneo-viridis, subnitidus, thorace latitudine non breviore, postice subangustato, angulis posticis obtusis subrotundatis, basi lævi, utrinque longius impresso, elytris striis tenuibus impunctatis interstitiis vix convexis 3io 5—8 punctato, antennarum basi pedibusque piceo-testaceis. Long. ·3—·37.

Colorado River, California. Has very much the form of (δ) of the preceding species, but the thorax is absolutely free from punctures; in some specimens the thorax is more distinctly narrowed at the base, but the difference is not well marked: the base of the thorax is occasionally piceous, as in the dark colored specimens of the next species, from which it is distinguished by the interstices of the elytra being smooth. The under surface is black, the epipleuræ tinged with piceous.

16. P. decorus, capite viridi-æneo, thorace sæpius rufo (nonnunquam piceo-virescente) latitudine vix breviore, basi paulo angustato, angulis posticis obtusis subrotundatis, basi fere lævi, utrinque longius impresso, elytris striis tenuibus, interstitiis fere planis sat distincte punctulatis brevissime vix distincte pilosis, 3io punctis 5—7 impressis, antennis basi pedibusque rufis. Long. ·31—34.

Lec. Agassiz' Lake Superior, 205.

Feronia decora Say, Trans. Am. Phil. Soc. 2, 53.

Anchomenus decorus Dej. Sp. Gen. 3, 115. Lec. Ann. Lyc. 4, 223.

Anchomenus obscurus Lec. Ann. Lyc. 4, 223. (Var. pedibus fere piceis, thoraceque viridi.)

Abundant in the Middle, Southern and Western States; the dark colored varieties and all the intermediate forms are found on the shores of Onondaga Lake, near Syracuse, New York. I think that Anch. thoracicus *Dej.* must belong to this species, but as the fine punctures of the elytra are not mentioned in his description, it will be safer to consider it as distinct; in some specimens of (*a*) they might, however, readily be overlooked.

a. Capite viridi vel cyaneo, thorace rufo, elytris viridi-nigris, interstitiis parce fere obsolete punctulatis. Long. ·31—·34.

Middle and Southern States; also found near the Pima villages on the Gila. This differs from the type in having the punctures of the interstices of the elytra very faint; they are, however, furnished with short hairs. The specimens from the Gila differ in having the thorax a little less narrowed posteriorly, and tinged with greenish.

17. P. anchomenoides, nigro-piceus, capite virescente, thorace subquadrato latitudine vix breviore, margine tenui non reflexo, postice subangustato, angulis posticis obtusis subrotundatis basi utrinque minus profunde impresso, disco virescente, lateribus late parteque inflexa testaceis, elytris thorace duplo latioribus oblongis, convexiusculis, testaceis, interstitio 3io punctis 4 maiusculis impressis, antennarum articulis tribus, palpis, ano, pedibusque flavo testaceis. Long. ·28.

Lec. Agassiz' Lake Superior, 205.

Agonum anchomenoides Randall, Bost. Journ. Nat. Hist. 2, 2.

Pennsylvania, Lake Superior and Maine; rare. The disc of the elytra is darker than the margin; in the specimen from Pennsylvania the striæ are deep and the intervals somewhat convex; the one from Lake Superior has very fine striæ and the intervals are entirely flat. Is not *Agonum sordens* Kirby, (Fauna Bor. Am. 23,) a closely allied species or, perhaps, a variety having smaller punctures.

18. P. californicus, niger, piceo-ænescens, thorace subquadrato, latitudine vix breviore, postice subangustato, margine tenuiter reflexo, angulis posticis obtusis minime rotundatis, impressionibus basalibus elongatis, postice profundis, elytris thorace duplo latioribus, oblongis, basi truncatis, tenuiter striatis, 3-punctatis, antennarum articulo 1mo, thoracis parte inflexa, epipleuris pedibusque piceo-testaceis. Long. ·27—·32.

? Anchomenus californicus Dej. Sp. Gen. 3, 128. Mann. Bull. Mosc. 1843, 197.

San Francisco, San Jose and San Diego, California. I am doubtful about the propriety of referring this to Dejean's species, which is described as having the head and thorax obscure greenish-bronzed; slight traces of such color may be perceived in some of my specimens, but usually they are of a brownish black color, slightly tinted with bronze. In the uncertainty which hangs over many of the species, and under my great want of success in collecting (or perhaps in identifying) the species found in California, it would be hardly prudent to propose this as a new species. The reflexed margin of the thorax is distinct, but very narrow.

D—f.

Winged species mostly of a black color, with the legs and antennæ of the same color as the body; the thorax is rounded, with the posterior angles very obtuse, or altogether rounded; the margin is moderately broad, usually slightly dilated and reflexed towards the base; the basal impressions are broad and shallow; the elytra are not much wider than the thorax, truncate, or even subemarginate at the base, rounded and hardly perceptibly sinuate towards the extremity; the interstices are mostly flat, and the third has three punctures, the second of which, except when otherwise stated, is placed on or near the third stria. A numerous group, containing closely allied, yet quite distinct species.

19. P. collaris, niger, nitidus, thorace rotundato, paulo convexo latitudine vix breviore, angulis posticis rotundatis indistinctis, margine piceascente latius reflexo postice latiore, impressionibus basalibus vix definitis, elytris thorace manifeste latioribus convexiusculis, striis tenuibus subtiliter crenulatis, interstitiis planis, 3io tripunctato, antennis basi fere piceis. Long. ·3—·35.

Anchomenus collaris Say, Trans. Am. Phil. Soc. 4, 421.

Louisiana; Dr. Schaum. A very distinct species, having the reflexed margin of the thorax broader than in any of the following; the basal impressions, although deep, are formed principally by the union of the reflexed margin with the moderately convex disc, and are consequently very indefinite. The punctures of the striæ of the elytra are very distinct.

20. P. mœrens, piceo-niger, nitidus, thorace subrotundato, latitudine paulo breviore, basi fere truncato, angulis posticis obtusis subrotundatis, margine reflexo postice latiusculo, impressionibus basalibus latis, tuberculo nullo, elytris thorace fere duplo latioribus, parum convexis, tenuiter striatis, tripunctatis. Long. ·34—·38.

Agonum mœrens Dej. Sp. Gen. 3, 152.

Louisiana, Dr. Schaum; Pennsylvania. This species differs from P. tenuis and others having fine elytral striæ, by the greater breadth of the reflexed margin of the thorax, (which, however, is narrower than in the preceding,) and by the greater distinctness of the posterior angles; the reflexed margin is sometimes tinged with piceous; the second elytral puncture is very near the second stria.

21. P. lævis, niger, nitidus, thorace rotundato, latitudine paulo breviore, basi late rotundata, angulis indistinctis, margine reflexo postice paulo latiore, impressionibus basalibus profundis, tuberculo obsoleto instructis, elytris convexiusculis, tripunctatis, striis profundis, vix punctulatis. Long. ·35—·38.

Middle and Western States. The thorax is more rounded than in P. melanarius; the tubercle of the basal impression less distinct, and the posterior angles hardly perceptible. From P. atratus it differs by the more strongly reflexed thoracic margin, the deeper basal impressions and the wider elytra.

22. P. melanarius, niger, nitidus, thorace subrotundato, latitudine breviore, basi fere truncata, angulis posticis obtusis rotundatis, margine reflexo postice paulo latiore, impressionibus basalibus latis, subrugosis, tuberculo distincto instructis, elytris thorace vix sesqui latioribus, basi subemarginatis, minus convexis, tripunctatis, striis profundis punctulatis, tibiis tarsisque obscure picescentibus. Long. ·36—·4·

Lec. Agassiz' Lake Superior, 205.

Agonum melanarium Dej. Sp. Gen. 3, 152. Kirby, Fauna Bor. Am. 26.

Agonum maurum Hald. Proc. Acad. Nat. Sc. 1, 300.

Middle States, abundant; Vermont, Dr. Harris. The more reflexed thoracic margin the deeper basal impressions, and the distinct tubercle near the angle will readily separate this species from P. Harrisii. Dr. Harris thinks that this is not the species intended by Dejean. As, however, the latter says that the tibiæ, tarsi and basal joint of the antennæ are sometimes of a brownish color, I think that he cannot refer to any other of our species having three elytral punctures. A specimen having the thorax a little longer and less regularly rounded on the sides, was sent me, by Dr. Harris, under the name *Agonum nitidum*; I cannot, however, find sufficiently definite characters to separate it.

23. P. metallescens, supra nigro-æneus, subnitidus, thorace subrotundato, latitudine breviore, basi late rotundata, angulis posticis obtusis rotundatis, margine angustius reflexo postice vix latiore, impressionibus basalibus subrugosis, tuberculo distincto instructis, elytris thorace sesqui latioribus paulo convexis, basi subemarginatis, striis tenuibus profundis, subtiliter punctulatis, interstitiis paulo convexis, 3io tripunctato. Long. ·3—·35.

Sault Ste Marie, and northern shore of Lake Superior. Resembles in form and sculpture the preceding species, but, besides the color, readily distinguished by the narrower thoracic margin. The under surface, the antennæ and feet are black, slightly bronzed.

24. P. tenuis, supra æneo-niger, nitidus, thorace latitudine breviore, subrotundato, basi late rotundata, angulis posticis obtusis rotundatis, margine angustius reflexo picescente postice sublatiore, impressionibus basalibus latis minus profundis, subrugosis, tuberculo indistincto instructis, elytris thorace fere sesqui latioribus, convexiusculis, tenuiter striatis, interstitiis planis, 3io tripunctato. Long. ·36.

Middle and Eastern States, rare. Sufficiently distinct from P. melanarius, by the slightly bronzed color, more obtuse and more rounded posterior thoracic angles, and less deep and impunctured elytral striæ. From P. metallescens, which it resembles in the form of the thorax, it is easily known by the smooth elytral striæ and more dull color. From P. mœrens, it is distinguished by the wider thorax with more rounded base and less distinct posterior angles.

Dr. Harris sent a specimen as Ag. collare *Say*; the impunctured striæ, however, prevent it from being referred to the species described by him under the same name in the Trans. Am. Phil. Soc. as above quoted.

25. P. Harrisii, niger, nitidus, thorace latitudine paulo breviore, subrotundato, basi late rotundata, angulis posticis obtusis, rotundatis, margine angustius depresso vix reflexo, impressionibus basalibus latis, subrugosis, minus profundis, tuberculo obsoleto instructis, elytris paulo inæqualibus, thorace sesqui latioribus, tripunctatis, striis impunctatis. Long. ·35—·4.

Agonum Harrisii Lec. Ann. Lyc. 4, 225.

Massachusetts and Lake Superior. The inequalities of the elytra are produced by irregular dilated shallow impressions along the course of the striæ: the most obvious of these is usually near the extremity of the fifth striæ: Dr. Harris regards this as specific, and therefore applied to the species the unpublished name *Ag. sulcatum*. The thorax is less transverse and less rounded than in the preceding species, and the sides are less distinctly reflexed towards the base. The second elytral puncture is on the second stria.

26. P. piceus, rufo-piceus, nitidus, antennis capite thoraceque supra obscuris, hoc quadrato-rotundato, latitudine paulo breviore, basi late rotundata, angulis posticis obtusis vix rotundatis, margine anguste depresso vix reflexo, impressionibus basalibus latis, minus profundis, elytris thorace vix sesqui latioribus tripunctatis, striis sat profundis. Long. ·28.

Agonum piceum Lec. Ann. Lyc. 4, 226.

Massachusetts, Dr. Harris. Although differing in size and color, so as to present no resemblance whatever to P. Harrisii, the form and structure is very much as in that species: the posterior angles of the thorax are more distinct, and the elytral striæ deeper: as in that species, the second elytral puncture is on the second stria.

27. P. carbo, niger, nitidus, thorace subrotundato, latitudine paulo breviore, basi vix late rotundata, angulis posticis obtusis rotundatis, margine angustissime reflexo, impressionibus basalibus minus dilatatis, sat profundis, elytris thorace vix sesqui latioribus convexiusculis, tenuiter striatis, tripunctatis. Long. ·35.

Lec. Agassiz' Lake Superior, 205.

One specimen, from the northern shore of Lake Superior. Differs from all the preceding species by the narrower and slightly thickened reflexed margin of the thorax. It approaches otherwise perhaps most nearly to P. tenuis: the second elytral puncture is very near the second stria, but not in it, as in the two preceding species.

28. P. atratus, niger, nitidus, thorace fere rotundato, latitudine paulo breviore, basi rotundata, angulis posticis rotundatis, indistinctis, margine reflexo postice paulo latiore, impressionibus basalibus latis tuberculo obsoleto instructis, elytris thorace paulo latioribus, convexiusculis, tripunctatis, striis sat profundis. Long. ·34.

Lec. Agassiz' Lake Superior, 205.

Northern shore of Lake Superior. The thorax perhaps most nearly resembles that of P. melanarius, but the base is more rounded, and the basal angles hardly to be determined: the elytra are but little wider than the thorax, and more convex, giving the insect very much the form of Pterostichus erythropus. In one specimen the striæ of the elytra are impunctured, in another they are obsoletely punctulate.

29. P. frater, niger, nitidus, thorace transverso, subquadrato, basi vix late

rotundato, angulis posticis obtusis rotundatis, lateribus late rotundatis, margine anguste reflexo, basi utrinque late impressa, tuberculo indistincto instructo, elytris thorace sesqui latioribus, paulo convexis, tripunctatis, striis profundis, interstitiis paulo convexis. Long. ·35.

San Francisco and San Diego, California, not rare. I was inclined to refer this species to Agonum brevicolle *Dej.*, (Sp. Gen. 3, 159) but on examining several specimens, I find that the elytral punctures are always three: the second is placed about the middle on the third stria, as in most of the species above described: the lateral margin of the thorax is hardly wider towards the posterior angles than at the middle: the basal impressions are sometimes slightly rugous and punctulate. The form of the thorax is somewhat that of P. Harrisii, but is less rounded on the sides.

30. P. quadratus, æneo-niger, nitidus, thorace latitudine paulo breviore, quadrato, postice subangustato, basi media truncata, margine reflexo postice paulo latiore, angulis posticis vix rotundatis, impressionibus basalibus profundis, subtiliter rugosis, elytris thorace duplo latioribus minus convexis subquadratis, tripunctatis, striis sat profundis, interstitiis fere planis. Long. .34.

One specimen, Oregon. Enough remains of the antennæ and feet, to show that they were black. This species has a comparatively smaller thorax than the others of this group, and seems to establish a passage towards group (C—d,) from which, however, it differs in having the basal impressions of the thorax more excavated, and not prolonged anteriorly. The sides of the thorax are moderately rounded anteriorly: the second elytral puncture is placed on the second stria.

31. P. cupripennis, subtus æneo-niger, capite thoraceque viridi-aureis, nitidis, hoc latitudine breviore rotundato, margine tenui postice paulo latiore, basi utrinque modice impressa, subtiliter rugosa, elytris thorace sesqui latioribus, oblongo-ovalibus, fulgenti-cupreis, viridi late marginatis, subtiliter tripunctatis, striis tenuibus, interstitiis planis. Long. ·32—·36.

Lec. Agassiz' Lake Superior, 205.

Feronia cupripennis Say, Trans. Am. Phil. Soc. 2, 50.

Agonum cupripenne Dej. Sp. Gen. 3, 139. Kirby, Fauna Bor. Am. 28.

Abundant throughout the Middle and Western States; found also at Lake Superior, and, according to Kirby, in lat. 54°. A variety from Lake Superior has the thorax and head and margin of the elytra greenish blue, and the disc of the latter golden.

A specimen from New York, given me by Mr. Guex, has the upper surface green, somewhat darker, and tinged with purple on the head and thorax.

D—g.

A group containing winged species, in which the thorax is almost circular, and finely margined, with the basal impressions deep, but very small like punctures. The elytra are oval, truncate at base, slightly sinuate at tip, and moderately convex; the striæ are deep and punctured, the third interval has three impressed punctures: the antennæ at least in part are rufous.

32. P. punctiformis, niger, nitidus, thorace rotundato, tenuiter marginato, basi utrinque puncto maiusculo impresso, elytris thorace fere duplo latioribus, convexis tripunctatis striis antice punctulatis, antennarum basi tibiis tarsisque rufis, femoribus sæpe nigro-piceis. Long. ·28—·36.

Lec. Agassiz' Lake Superior, 206.

Feronia punctiformis Say, Trans. Am. Phil. Soc. 2, 58.

Agonum rufipes Dej. Sp. Gen. 3, 173.

Agonum punctiforme Say, Trans. Am. Phil. Soc. 4, 423.

Agonum foveicolle Chaudoir, Bull. Mosc. 1843, 764.

Lake Superior, Pennsylvania, Georgia, Nebraska. Between the specimens having the legs entirely red, and those having the thighs almost black, I can perceive no difference of a specific nature. Mr. Chaudoir compares it with *Ag. lenum* (Dej.,) but his description applies to no other but this species.

33. P. limbatus, nitidus, capite thoraceque saturate piceo-rufis, hoc rotundato, tenuiter marginato, basi utrinque puncto magno impresso, elytris thorace haud sesqui latioribus nigris margine lato testaceo, tripunctatis, striis fortius punctatis, postpectore abdomineque nigris, antennis piceis basi, palpis pedibusque testaceis. Long. ·35.

Feronia limbata Say, Trans. Am. Phil Soc. 2, 47.

Agonum palliatum Dej. Sp. Gen. 3, 174.

Georgia, Illinois and Pennsylvania. A more robust species than the preceding, with a larger thorax.

E.

A group containing winged species of a metallic or submetallic color, with the base of the antennæ, the palpi and the legs, or at least the tibiæ and tarsi yellow. The thorax is slightly cordiform, narrowly margined, with the posterior angles obtuse and slightly rounded; the basal impressions are deep, moderately large and punctulate; the elytra are twice as wide as the thorax, truncate at base, moderately convex; the striæ are punctured; the third interstice has three punctures, of which the second is on or near the second stria.

34. P. æruginosus, piceo-æneus, nitidus, thorace latitudine subbreviore, ovali, convexo, tenuiter marginato, angulis posticis rotundatis, impressionibus basalibus parvis minus impressis, elytris thorace duplo latioribus, ovalibus, convexis, tenuiter striatis, interstitiis planis, 3io tripunctato, antennarum basi pedibusque piceo-testaceis. Long. ·23—·28.

Agonum æruginosum Dej. Sp. Gen. 3, 168.

Vermont, Pennsylvania, Illinois, Georgia. By the small size of the basal impression of the thorax, this is readily distinguished from the other species of this group. Sometimes the antennæ appear entirely brownish black, but usually the first joint, at least, is reddish.

35. P. excavatus, æneus, nitidus, thorace latitudine non breviore, parum convexo, postice subangustato, basi punctulato utrinque profunde impresso, angulis posticis obtusis rotundatis, elytris thorace duplo latioribus tenuiter striatis, striis versus basin subtiliter punctulatis, interstitio 3io trifoveato, antennis basi pedibusque piceo-testaceis. Long. ·28.

Agonum excavatum Dej. Sp. Gen. 3, 169.

Middle and Western States; not rare on the banks of streams.

36. P. ferreus, nigro-æneus, nitidus, thorace latitudine fere longiore convexo, postice paulo angustato, basi punctulato utrinque profunde impresso, angulis posticis obtusis, subrotundatis, elytris convexiusculis, tripunctatis, striis profundis usque ad medium valde punctatis, versus apicem minus impressis antennarum basi tibiis tarsisque piceo-testaceis. Long. ·3.

Agonum ferreum Hald. Proc. Acad. Nat. Sc. 1, 299. Lec. Ann. Lyc. 4, 228.

Agonum ocreatum Hald. Proc. Acad. Nat. Sc. 1, 299. (Spec. immat.)

Middle and Western States; not common. The striæ of the elytra are quite faint towards the tip, which is obliquely subsinuate.

37. P. errans, obscure cyaneo-æneus, nitidus, thorace latitudine paulo breviore, paulo convexo, postice magis angustato, basi vix punctulato, utrinque profunde impresso, angulis posticis obtusis rotundatis, elytris thorace duplo latioribus paulo convexis, tripunctatis, striis angustis impunctatis, antennis fuscis, articulis 3 pedibusque rufis. Long. ·29.

Feronia errans Say, Journ Acad. Nat. Sc. 3, 147.

Agonum errans Say, Trans. Am. Phil. Soc. 4, 423.

One specimen found on Platte River, Nebraska. Very similar to the next, but the thorax is longer and more distinctly narrowed posteriorly; the striæ of the elytra are absolutely without punctures, and the base of the antennæ is much paler.

38. P. subcordatus, cupreo-æneus (raro viridi æneus) nitidus, thorace

minus convexo, latitudine breviore, postice subangustato, basi punctulato, utrinque latius profunde impresso, angulis posticis obtusis subrotundatis, elytris thorace fere duplo latioribus minus convexis, tripunctatis striis angustis versus basin subtiliter punctulatis, antennis nigro-piceis, articulo 1mo pedibusque piceo-rufis. Long. ·3—·34.

Lec. Agassiz' Lake Superior, 205.

?Agonum erythropum‖ Kirby, Fauna Bor. Am. 28.

Sandy Lake, Upper Mississippi; the green variety was found in Nebraska, near the Rocky Mountains. By the change of genus Kirby's name becomes a homonym of P. erythropus Dej. above described. As Mr. Kirby does not mention the punctures of the base of the thorax, nor of the striæ of the elytra, I am not certain that his species is the same as the one described; should it prove to be different from mine, the name P. Kirbyi must be applied to it.

39. P. basalis, æneus, nitidus, thorace latitudine non breviore ovali convexiusculo, postice subangustato, angulis posticis rotundatis, impressionibus basalibus profundis parce punctulatis, tuberculo obsoleto instructis, elytris thorace duplo latioribus oblongis, minus convexis, striis modice profundis, interstitiis paulo convexis, 3io subtiliter tripunctato, antennis piceis, articulo 1mo pedibusque rufis. Long. ·3.

Agonum basale Lec. Ann. Lyc. 4, 227.

One specimen found in Nebraska, near the mountains. From its color and form this species, at first sight, resembles a small specimen of P. extensicollis, but on comparison it is found completely different. The basal impressions of the thorax are not prolonged anteriorly, and the margin is not wider at the rounded posterior angles. The third interstice of the elytra has only three very small punctures, of which the second and third are placed on the second stria.

40. P. vagans, virescente-æneus, nitidus, thorace latitudine non breviore, ovali, postice subangustato, margine postice paulo latiore, angulis posticis rotundatis, impressionibus basalibus profundis, parce punctulatis, elytris thorace duplo latioribus, oblongo-ovalibus, parum convexis, striis sat profundis obsolete punctulatis, interstitiis vix convexis, 3io subtiliter tripunctato, antennis piceis, articulo 1mo pedibusque rufis, genubus, tarsisque paulo infuscatis. Long. ·29.

One specimen, New York. Resembles in form P. nutans, but the elytra have only three small punctures (the second near the second stria on one elytron, and near the third on the other;) the striæ are deeper and very finely punctulate; from P. subcordatus, it differs by the longer thorax.

F.

Winged species of a slender form, usually black, sometimes, hower, piceous, and in one instance of a metallic green color; the base of the antennæ and the feet are yellow; the thorax is oval, with the margin narrowly reflexed becoming broader towards the posterior angles, which are rounded and indistinct; the basal impressions are narrow, sometimes deep and smooth, sometimes nearly obsolete. The elytra are elongate oval, twice as wide as the thorax, moderately convex, emarginate at the base and obliquely subtruncate at tip; the striæ are fine, the interstices flat, the third marked with five or six punctures.

41. P. nutans, capite thoraceque viridiæneis, hoc ovali, latitudine longiore, margine angusto reflexo postice latiore, angulis posticis nullis, impressionibus basalibus profundis lævibus, elytris thorace duplo latioribus, elongatis, æneis nitidis, 5-punctatis, striis tenuibus impunctatis, antennis nigris articulo 1mo pedibusque piceo-rufis, femoribus apice infuscatis. Long. ·27—·35.

Feronia nutans Say, Trans. Am. Phil. Soc. 2, 52.

Agonum nutans Say, ibid. 4, 423, (syn. excl.); Lec. Ann. Lyc. 4, 227.

Agonum femoratum Dej. Sp. Gen. 3, 146.

Middle and Western States; also in Nebraska. Say, in the fourth volume above cited, makes the unaccountable error of referring Agonum striatopunctatum *Dej.* to this species.

42. P. crenulatus, nigro-æneus, minus convexus, thorace subrotundato, latitudine paulo breviore, margine reflexo postice paulo latiore, angulis posticis nullis, basi utrinque profundius impresso, et parce punctulato, elytris thorace duplo latioribus oblongis, 5 vel 6-punctatis, striis tenuibus antice punctulatis, interstitiis planis, antennarum basi pedibusque piceo-testaceis, vel testaceis. Long. ·31.

Georgia, rare; Louisiana, Dr. Schaum. This species establishes, by its form and characters, a passage from this group towards P. excavatus among those having three elytral punctures. The elytra are broader and more square in their outline than in any other species of this group, to which, nevertheless, it seems most closely related; in one specimen three joints of the antennæ are pale, in the other only the first one is dark testaceous.

43. P. striatopunctatus, æneo-niger, elongatus nitidus, thorace ovali latitudine longiore, margine reflexo postice latiore, angulis posticis nullis, basi utrinque profunde impresso, et obsolete punctulato, elytris thorace duplo latioribus, elongato ovalibus, striis punctulatis sat profundis, interstitiis paulo convexis, antennarum articulo 1mo pedibusque testaceis. Long. ·24—·3.

Agonum striatopunctatum Dej. Sp. Gen. 3, 167.

Agonum decipiens Lec. Ann. Lyc. 4, 229.

Georgia. Has very much the form of P. nutans, but is smaller and darker colored; the striæ of the elytra are deeper and distinctly but finely punctured.

44 P. retractus, niger, nitidus, thorace rotundato-ovali, latitudine non breviore, postice modice angustato, angulis posticis valde rotundatis, margine tenui postice latiore subreflexo, basi utrinque longitudinaliter sat profunde impressa, elytris ovalibus, picescentibus thorace plus sesqui latioribus, striis modice profundis, interstitiis subconvexis, 3io punctis 4 vel 5-impresso, pedibus rufis, antennis piceis basi rufo-testaceis. Long. ·27—·3.

Lec. Agassiz' Lake Superior, 205.

Agonum retractum Lec. Ann. Lyc. 4, 228.

?*Agonum lenum* Dej. Sp. Gen. 3, 166.

Lake Superior, Massachusetts and New York. The first specimen described by me was defective in having very small elytral punctures, whereby I was led into the error of describing the elytra as having only three punctures on the third interstice. The thorax is larger and wider in proportion than the last species, but the elytra are wider and less elliptical than in the remaining species of this group, and the striæ are deeper. I am somewhat doubtful about referring Dejean's description to this species, since not only the first joint of the antennæ, but very frequently three or four joints are paler than the outer joints, and the striæ of the elytra, in comparison with the following species, could hardly be called fine. As, however, Dejean implies that the sides of the thorax are somewhat reflexed posteriorly, I must acknowledge that my reference of his species to what is described below as P. picipennis, must be considered faulty.

45. P. ruficornis, piceo-niger nitidus, elongatus, thorace latitudine paulo longiore, ovali, postice paulo angustato, angulis posticis rotundatis, margine tenuiter reflexo postice paulo latiore, impressionibus basalibus latis minus profundis, elytris elongato-ellipticis, thorace vix sesqui latioribus, piceis striis tenuibus, interstitiis planissimis, 3io punctatis 5—7 impresso, pedibus rufis, antennis piceis extrorsum pallide rufis. Long. ·31.

Lec. Agassiz' Lake Superior, 205.

?*Agonum picipenne* var. C and D. Kirby, Fauna Bor. Am. 25.

Lake Superior. Larger than the preceding and following species, and besides the difference in the thorax, readily distinguished by the antennæ being much paler from the fourth joint outwards. I have cited Kirby, because he says that the varieties mentioned have the second, third and fourth joints of the antennæ piceous, and the rest ferruginous; in my specimens the first joint is rufous in one, and piceous in the others.

46. P. picipennis, niger nitidus, elongatus, thorace ovali, latitudine lon-

giore, tenuiter marginato, angulis posticis rotundatis, impressionibus basalibus angustis parum profundis, elytris thorace latioribus, elongato-ellipticis, piceis, striis tenuibus, interstitiis planis 3io punctis 4—6 impresso, epipleuris pedibusque piceo-testaceis, antennis nigro-piceis, articulo 1mo rufescente. Long. ·25—·27.

Agonum picipenne Kirby, Fauna Bor. Am. 25.

Agonum lenum‡ Lec. Ann. Lyc. 229.

Platynus lenis‡ Lec. Agassiz' Lake Superior 205.

Middle States, Nebraska and Lake Superior. The elytra are sometimes nearly black, and sometimes nearly testaceous; the lateral margin of the thorax is not dilated posteriorly. In the paler specimens the antennæ are piceous, with the first three or four joints testaceous.

47. P. l u t u l e n t u s, piceo-testaceus, nitidus elongatus, capite nigro, thorace ovali, latitudine longiore, tenuissime marginato, angulis posticis rotundatis, impressionibus basalibus parvis minus impressis, elytris thorace latioribus, elongato-ellipticis, striis tenuibus interstitiis planis, 3io punctis 4 maiusculis impresso, antennis piceis, articulo 1mo rufo. Long. ·26.

Maine and Lake Superior. Apart from the difference in color, this species differs from the preceding in having the thorax still more finely margined, with the basal impressions smaller and less marked; the striæ of the elytra are finer, and the punctures appear to be larger and never more than four in number. I formerly distributed this species as Agonum sordens *Kirby*, (Fauna Bor. Am. 25,) but on reviewing the subject, I find that it does not correspond with his description. The color beneath is about the same as above, and varies from pale piceous to deep piceous.

48. P. n i g r i c e p s, pallide testaceus, nitidus, elongatus, capite nigro, thorace elongato, subquadrato, latitudine longiore, lateribus paulo rotundatis, basi angulisque posticis rotundatis, tenuissime marginato, impressionibus basalibus parvis, minus impressis, elytris thorace sesqui latioribus elongato-ellipticis, striis tenuibus, interstitiis planis 3io punctis 4 subtilibus impresso, sutura thoracisque disco longitudinaliter infuscatis, antennis piceis, basi testaceis. Long. ·25.

Lec. Agassiz' Lake Superior, 205.

Agonum nigriceps Lec. Ann. Lyc. 4, 229.

One specimen, Eagle Harbor, Lake Superior. The appearance is very much like that of Demetrias atricapillus of Europe; the elytra are somewhat more distinctly sinuate at the apex than in the other species of this group, and are, indeed, almost obliquely truncate; the sutural striæ is deeper than the others.

G.

A group containing but one winged species of a metallic green color, and moderately stout figure; the thorax is rounded, slightly truncate at base, very finely margined, with the basal impressions small and deep; the elytra are subelliptical, emarginate at base, slightly sinuate at tip, finely striate, with several large quadrate foveæ on the third interval.

49. P. o c t o p u n c t a t u s, supra æneo-viridis, vix nitidus; thorace rotundato, tenuiter marginato, basi subtruncata, utrinque fovea profunda impressa, elytris thorace sesqui latioribus ellipticis, tenuiter striatis, foveis quatuor quadratis obscuris profundis utrinque impressis, antennarum basi pedibusque piceo-rufis, femoribus æneo-micantibus. Long. ·3.

Carabus octopunctatus Fabr. Ent. Syst. Suppl. 55. Syst. El. 1, 186.

Feronia octopunctata Say, Trans. Am. Phil. Soc. 2, 51.

Agonum octopunctatum Dej. Sp. Gen. 3, 136.

Middle and Western States. The elytra are frequently tinged with coppery from the suture as far as the fourth stria, and have occasionally five foveæ. The under surface is shining blackish green.

H—h.

oup containing two winged species, in which the thorax is rounded and
itely large, finely margined, with the margin extending along the sides of
e and very slightly thickened, but hardly reflexed. The elytra are not
wider than the thorax, emarginate at base, hardly sinuate at the apex, and
ur and five punctures on the third interval. The antennæ and feet are
y black; the upper surface is coppery.

P. protractus, elongatus supra æneus, nitidus, thorace rotundato,
r marginato, basi truncata utrinque latius foveata et obsolete punctulata,
posticis valde rotundatis, elytris thorace paulo latioribus, 4-punctatis,
itiis planis; subtus cum antennis pedibusque æneo-niger. Long. ·33.
Superior, and Sandy Lake, Minnesota. The difference between this and
t species is not well defined; nevertheless, several specimens agree in
the thorax not wider than long, with the posterior angles more definite,
h much rounded; the general form of the body is narrower. These dif-
s are not sexual, as of each form are found both males and females.

P. chalceus, capite thoraceque supra æneis nitidis, hoc rotundato,
r marginato, latitudine breviore, basi truncata, utrinque latius foveata et
e punctulata, angulis posticis obsoletis, elytris thorace fere sesqui lati-
cuprascentibus, 4 vel 5-punctatis, interstitiis planis, subtus cum antennis
sque æneo-niger. Long. ·33—·35.
Agassiz' Lake Superior, 205.
um chalceum Lec. Ann. Lyc. 4, 224.
Ste Marie, Michigan, not rare; a specimen also occurred in Nebraska.
onum cupreum Dej. (Sp. Gen. 5, 736,) be a variety of this or the pre-
species, having but three elytral punctures?

H—i.

ged species of moderately stout figure and variable color. The thorax is
nd rounded, with the posterior angles obsolete; the margin is fine and
reflexed, the basal impressions are large, rounded and shallow. The
re deeply emarginate at base, very slightly sinuate at the apex; the striæ
, and the intervals flat; the third interval has from 5 to 8 punctures.

P. placidus, cyaneo-niger, subnitidus, thorace rotundato, latitudine
breviore, margine fortius reflexo picescente postice paulo latiore, basi
e late sat profunde foveata, elytris thorace sesqui latioribus, tenuiter
, 5—7-punctatis, antennarum articulo 1mo tibiis tarsisque piceo-testaceis.
3—37.
ia placida Say, Trans. Am. Phil. Soc. 2, 43.
um morosum Dej. Sp. Gen. 3, 145.
Superior, Maine, Illinois, New York, Georgia, Santa Fe. Readily recog-
y its greenish or bluish black color; the elytral punctures are usually six
ber, of which the two posterior are situated in the second stria, the others
third. Varieties occur having the legs of a uniform dull reddish color.

'. maculicollis, rufo-testaceus, subnitidus, capite obscuriore, thorace
to, latitudine breviore, margine tenui paulo reflexo, basi utrinque late
tincte impressa obsolete punctulata, macula discoidali magna obscura
elytris thorace sesqui latioribus, tenuiter striatis, 5—6-punctatis, nigris
e lata ad humeros dilatata antennis pedibusque testaceis, abdomine nigro-
no testaceo. Long. ·40—·48.
um maculicolle Dej. Sp. Gen. 3, 175.
omenus maculicollis Mann. Bull. Mosc. 1843, 199.
ornia, in every part west of the Sierra; the elytra are distantly and very
ely punctulate; of the punctures the two anterior are placed in the third,
ers in or near the second stria. The thorax is sometimes entirely testa-
By a strange error Count Mannerheim has added the word "apterus" to
gnosis, which he has otherwise copied almost literally from Dejean; the

insect is always winged, and at San Diego, in June, occurred in such numbers, flying in the twilight, as to be very troublesome.

54. P. variolatus, æneo-niger, thorace latitudine breviore, rotundato, margine tenui reflexo, basi utrinque late minus profunde foveata, elytris thorace duplo latioribus, tenuiter striatis, punctis 5—7 maiusculis impressis, æneo-piceis, margine late pedibusque flavo-testaceis, antennis nigro-piceis, articulo 1mo rufo. Long. ·25.

Lec. Ann. Lyc. 5, 178.

San Francisco, California; under bark of dead trees. The four anterior of the elytral punctures are placed on the third, the posterior three, or two (as the case may be) are adjacent to the second stria. In one specimen there are only three punctures on the third stria, the other four being on the second. The basal impressions do not combine with the concavity near the margin (as in P. placidus) but remain distinct.

Mr. Motschulsky (Bull. Mosc. 1845, pars 1, 21,) has mentioned a species under the name *Agonum limbatum*, which may be identical with our insect. He merely states, "in size and form it resembles closely A. pelidnum, but is readily distinguished by the whitish margin of the elytra." The specific name is, however, preoccupied by Say.

H—k.

A group containing species of a robust form, but flattened body; the color is more or less metallic; the legs and antennæ dark colored or black; the thorax has the posterior angles somewhat distinct, but not prominent; the margin is very narrow, but not reflexed; the basal impressions are shallow and prolonged anteriorly. The elytra are scarcely one half wider than the thorax, emarginate at base, very slightly sinuate at the tip; the striæ are well marked, but fine; the third interval has from five to seven punctures.

55. P. deplanatus, æneus, virescens, modice elongatus, thorace rotundato-quadrato, tenuiter marginato, latitudine breviore, postice parum angustato, basi truncato, utrinque sat profunde impresso, angulis posticis obtusis, haud rotundatis, elytris fere depressis, thorace vix sesqui latioribus, oblongis, tenuiter striatis, 6-punctatis, antennarum articulo 1mo pedibusque piceo-æneis. Long. ·38—45.

Agonum deplanatum Ménétriés, Bull. Petrop. 2, 58. (1844.)

Abundant at San Jose. The original description mentions that the striæ of the elytra are finely punctulate; this character may be observed in some specimens, but is usually not apparent. The basal impressions of the thorax are sometimes very obsoletely punctulate; the punctures of the third interval of the elytra are not adjacent to either stria.

56. P. fossiger, niger, vel æneo-niger, thorace rotundato-quadrato, tenuiter marginato, postice subangustato, basi late rotundata, utrinque longius impressa, angulis posticis obtusis subrotundatis, elytris paulo convexis, (feminæ opaciusculis) thorace vix sesqui latioribus, oblongis, striis fere impunctatis, interstitiis parum convexis, 3io punctis 5—7 maiusculis impressis. Long. ·35—38.

Agonum fossiger Dej. Sp. Gen. 3, 160.

Anchomenus fossiger Mann. Bull. Mosc. 1843, 199.

California, at San Francisco, San Jose, San Diego, and the Colorado River. Varies not only in color, but even in form; the thorax is usually distinctly wider than long, and considerably rounded on the sides; the basal impressions are broad and obsoletely prolonged anteriorly to the middle, and occasionally slightly punctulate.

a. This is a single specimen from San Francisco, in which the thorax is not wider than long, almost square, and less rounded on the sides than in the other specimens, but with the posterior angles less distinct and more rounded. The general form of the body is narrower, but as I have not found the characters sufficiently distinct, it would be imprudent for the present to separate it under another name.

I.

A group of small black winged species, having the thorax transverse, rounded at the sides and base, with the posterior angles very obtuse, but usually distinct; the margin is narrowly reflexed, especially towards the posterior angles; the basal impressions are not obvious, being lost in the concavity between the margin and the disc; the elytra are oblong, and flattened; they are deeply emarginate at base; when the elytra have three small punctures, they are almost truncate at tip, and are slightly sinuate: when the elytra are deeply foveate, the sutural portion is more prolonged, so that the truncation becomes oblique. The striæ are very fine and badly defined; the legs and antennæ are black; the latter are a little stouter than usual, though hardly perceptibly so.

57. P. consimilis, niger, nitidus, thorace subquadrato transverso, basi et lateribus latius rotundato, angulis posticis distinctis, margine tenui reflexo postice paulo latiore, elytris oblongis, basi valde emarginatis, thorace duplo latioribus, tenuiter striatis, subtiliter tripunctatis. Long. ·32.

One specimen; Michipicoton, Lake Superior. Differs from P. obsoletus by its larger size, less rounded base of thorax, and much more distinct posterior angles. The four anterior trochanters are red. As in the next two species, the apex of the elytra is almost truncate, and as in them the second puncture is in the second stria.

58. P. obsoletus, niger, nitidus, thorace transverso, postice subangustato basi valde rotundato, angulis posticis obtussissimus, margine tenui reflexo postice paulo latiore, elytris oblongis, basi valde emarginatis, thorace duplo latioribus, tenuiter striatis, subtiliter tripunctatis. Long. ·24—·28.

Feronia obsoleta Say, Trans. Am. Phil. Soc. 2, 57.

Agonum luctuosum Dej. Sp. Gen. 3, 172.

Agonum obsoletum Say, Trans. Am. Phil. Soc. 4, 423.

'*Feronia placida* Say,'† Lec. Ann. Lyc. 4, 227; Agassiz' Lake Superior, 205.

New York and Lake Superior. The error by which I referred this species to Feronia placida Say, is entirely unaccountable. This common species frequently has the anterior and middle trochanters of a deep red color. I have received a typical specimen named by Say, through the kindness of Dr. Harris.

59. P. strigicollis, niger, nitidus, thorace transverso, postice vix angustato, basi rotundata, angulis posticis obtusis, margine tenui reflexo postice paulo latiore, impressionibus basalibus longiusculis minus distinctis subtiliter rugosis, elytris fere duplo latioribus oblongo-quadratis, subtiliter striatis, tripunctatis. Long. ·3.

Anchomenus strigicollis Mann. Bull. Mosc. 1852, 294.

Oregon, at Prairie Paso, and Fort Vancouver, Dr. J. G. Cooper; northern part of the west coast of America, according to Count Mannerheim. This species is very closely related to the preceding, but the thorax is wider posteriorly, thus becoming more quadrate, the posterior angles are more distinct, and the reflexed margin is a little wider. The elytra are comparatively much shorter, being not more than one half longer than wide, while in P. obsoletus they are fully twice as long as wide; the basal impressions of the thorax, though long, are very indistinct; in the preceding they cannot be traced.

60. P. bembidioides, æneo-niger, opacus, thorace transverso subquadrato, basi rotundata, postice subangustato, angulis posticis obtusis at distinctis, elytris oblongis, maculis sericeis confluentibus variegatis, tenuiter striatis, foveis quatuor magnis utrinque impressis. Long. ·26.

Lec. Agassiz' Lake Superior, 206.

Sericoda bembidioides Kirby, Fauna Bor. Am. 15, pl. 1, fig. 2.

Agonum bembidioides Lec. Ann. Lyc. 4, 227.

One specimen, Lake Superior. Closely resembles the next species, but is sufficiently distinct by its larger size, and the irregularly mottled appearance of the elytra.

Kirby's genus Sericoda was formed on an erroneous examination of the palpi

of a distorted or mutilated specimen. Chaudoir (Bull. Mosc. 1844, p. 70) has established a genus Rhytiderus, upon Dromius 10-punctatus, from South America, but which, as observed by Erichson, (Bericht über —— Entom. 1844,) belongs to Kirby's Sericoda. The relation between the genus Sericoda, and a very common insect of northern Europe, does not, however, appear to have been suspected by any of the authors.

61. P. stigmosus, æneo-niger, subnitidus, thorace transverso subquadrato, basi rotundata, postice subangustato, angulis posticis obtusis at distinctis, elytris oblongis, tenuiter striatis, utrinque foveis magnis quatuor impressis. Long. ·21.

Platynus quadripunctatus‡ Lec. Agassiz' Lake Superior, 206.

Very abundant at Lake Superior, and found also in Maine and New Hampshire. Dr. Schaum tells me that he considers this as the same as the European P. quadripunctatus, and in my catalogue of Lake Superior Coleoptera, I gave it as such on his authority. On comparing, however, a large number of specimens with one found in Sweden, the posterior angles of the thorax, although very obtuse, appear to be always well defined, while in the European specimen the angles and the base are rounded together, so that the apex of the angle cannot be defined.

Many of the specimens have two slightly impressed foveæ before the middle of the thorax, but some are found without such impressions.

OLISTHOPUS *Dej.*

1. O. parmatus, niger, nitidus, thorace rotundato, transverso, margine tenui testaceo, basi utrinque minus profunde impressa, elytris thorace latioribus breviter ovalibus, basi emarginatis, subtiliter tripunctatis, sat profunde striatis, piceo-testaceis, disco plus minus infuscato, antennis palpis pedibusque testaceis, illis extrorsum fuscis. Long. ·28.

Dej. Sp. Gen. 3, 181.

Feronia parmata Say, Trans. Am. Phil. Soc. 2, 49.

Olisthopus cinctus Say, Trans. Am. Phil Soc. 4, 424.

Pennsylvania, Indiana, Georgia. A type of O. cinctus, given me by Dr. Melsheimer, does not differ in any essential point from the other specimens. I have never seen any in which the lateral bead of the thorax was not testaceous, and am inclined to believe that Mr. Say had not a specimen of his *Feronia parmata* before him when he described O. cinctus. The basal impressions of the thorax are sometimes obsoletely punctulate, in other specimens they are quite smooth; the elytra are sometimes nearly uniform brownish yellow, sometimes piceous, with the shoulders and sides indistinctly brown.

2. O. micans, nigro-piceus, nitidus, cyaneo-micans, thorace rotundato, transverso, margine tenui testaceo postice subreflexo, basi utrinque vix late foveata, elytris ovalibus. basi emarginatis, tripunctatis, tenuiter striatis, margine tenui testaceo, antennis palpis pedibusque flavis, illis extrorsum fuscis. Long. ·18.

Leconte, Ann. Lyc. New York 4, 230.

Georgia and Louisiana. Readily distinguished by its small size; the striæ of the elytra are finer than in O. parmatus, and the intervals perfectly flat; the margin of the thorax is a little reflexed and broader towards the base.

SPECIES UNKNOWN TO ME.

From California.

Calathus Behrensii Mann. Bull. Mosc. 1843, 195.

Scaphiodactylus micans Chaud. Bull. Mosc. 1844, 479. *Anchomenus micans* Ménétriés, Bull. Petrop. 2, 58.

Tanystola striata Motsch. Käfer Russl. (Carab.) 69. *Anchomenus striatus* Dej. Sp. Gen. 3, 132. Mann. Bull. Mosc. 1843, 198.

Tanystola sulcata Motsch. Käfer Russl. (Carab.) 70. *Anchom. sulcatus* Dej. Sp. Gen. 3, 131. Mann. Bull. Mosc. 1843, 198.

Anchomenus ovipennis Mann. Bull. Mosc. 1843, 196. *A. rotundipennis* Motsch. Bull. Mosc. 1845, part 2. 340.

Anchomenus rugiceps Mann. Bull. Mosc. 1843, 196. *A. ovipennis* Motsch. l. cit. 2, 339.

Anchomenus maurus Motsch. Bull. Mosc. 1845, 2, 339.

Anchomenus brunneo-marginatus Mann. Bull. Mosc. 1843, 196.

Anchomenus ferruginosus Dej. Sp. Gen. 3, 128. Mann. Bull. Mosc. 1843, 197.

Agonum brevicolle Dej. Sp. Gen. 3, 159. *Anchom. brevicollis* Mann. Bull. Mosc. 1843, 199.

Agonum famelicum Ménétriès, Bull. Petrop. 2, 58.

From Russian America.

Agonum molle Esch. Mém. Soc. Imp. Mosc. 6, 102. Fischer, Ent. Ross. 2, 125, tab. 19, fig. 2. *Anchom. mollis* Dej. Sp. Gen. 3, 129. Mann. Bull. Mosc. 1843, 198.

Agonothorax planipennis Motsch. Käfer Russl. (Carab.) 68.

From Atlantic America.

Anchomenus elongatulus Dej. Sp. Gen. 3, 112.

Agonum nitidulum Dej. Sp. Gen. 3, 143.

Agonum cupreum Dej. Sp. Gen. 5, 735.

Agonum albicrus Dej. Sp. Gen. 3, 158.

Agonum sordens Kirby, Fauna Bor. Am. 25.

Agonum seminitidum Kirby, Fauna Bor. Am. 26.

Agonum simile Kirby, Fauna Bor. Am. 27.

Agonum affine Kirby, Fauna Bor. Am. 27.

Feronia maculifrons Say, Journ. Acad. Nat. Sc. 3, 116, (vide Platynus cincticollis, sup. p. 43.)

Feronia scutellaris Say, (Journ. Acad. Nat. Sc. 3, 146) is a diseased specimen of one of our black species, allied to P. melanarius.

Anchomenus pubescens Dej. (Sp. Gen. 3, 122) of which Anch. obconicus Hald. (Proc. Acad. 1, 299) is a synonym, does not belong to this group, but forms a genus Atranus Lec. (Ann. Lyc. 4, 438,) allied to Chlænius.

The European Platynus angusticollis Dej. is mentioned by Kirby (Fauna Bor. Am. 23) as being found on this continent in lat. 54° and 65°; his description seems to apply to one of the species of division (B—a,) and probably to P. marginatus; a comparison of specimens is, however, desirable in order to establish the synonymy.

Descriptions of new genera and species of North American Frogs.

By Spencer F. Baird.

HYLADÆ.

Teeth in upper jaw. Abdomen granulated. Two outer metatarsals, firmly united throughout by muscle and ligament.

1. *Acris crepitans*, Baird.—Brownish above. The median region of head and body above bright green: a dark triangle between the eyes. Three oblique blotches on the sides, nearly equidistant; the first behind the eye, the last on the flanks and running up on the back; all usually margined with lighter. A narrow white line from the eye to the arm. Beneath yellowish white. Inferior face of thigh plain. Tibia a little more than half the length of the body; foot rather smaller. Head rather obtuse, scarcely longer than broad. Web of hind foot extending to the penultimate articulation of the 4th toe.

Syn. *Hylodes gryllus*, De Kay, N. Y. Zool. III. (1842.) 70, Pl. xxii. f. 61.

Hab. Northern States generally.

2. *Acris acheta*, Baird.—Slender. Tibia two-thirds the length of body. Color above dark brown; blotched much as in *Acris gryllus*. Beneath white, closely

mottled with brown on the body and on the inferior and inner faces of the limbs; where are also visible minute white dots. Lower surface of body appears quite black. A narrow white line from eye to arm.

Hab. Key West, Florida.

Genus CHOROPHILUS, Baird.

Smooth above, granulated beneath. Extremities of limbs simple, not dilated at tip. Hands free; feet with a slight basal web, which is entirely wanting between the two outer toes. Tongue orbicular; emarginate behind. Teeth posterior to the inner nares. Tympanum distinct. Transverse apophyses of sacral vertebræ dilated into triangular pallets.

Distinguished from *Acris* by expansion of apophyses; from *Litoria* by the emarginate tongue, less membrane of toes, and more posterior palatine teeth; from *Hylodes* in having a membrane at base of toes, &c.

Type, *Chorophilus nigritus*, Baird, (Cystignathus nigritus, Holb.)

Genus HELOCÆTES, Baird.

Granulated almost everywhere above and below. Tongue nearly entire. Vomerine teeth between the nares. Tympanum distinct. Fingers and toes slightly dilated or knobbed. Fingers free; toes webbed to bases of phalanges; a slight membrane at base of outer toes. Transverse apophyses of sacral vertebræ expanded at ends.

Differs from *Hylodes* and *Acris* in membrane of toes, and dilatation of sacral apophyses; from *Hyla* in slight web and disks; from *Chorophilus* in more anterior position of vomerine teeth, &c.

3. *Helocætes feriarum*, Baird.—Body stout, squat. Head broad. Femur and tibia and hind foot about equal, and half the length of the body. Above dark or fawn, with three nearly parallel stripes down the back, the central widening, but scarcely bifurcate behind, and commencing behind a triangular spot between the eyes. A similar dark vitta on sides of head and body, with a white line along edge of the jaw. Body about one inch long.

Hab. Carlisle, Penna.

4. *Helocætes triseriatus*, Baird.—Body rather slender; head narrow. Femur less than tibia, which is about two-thirds length of body, and shorter than hind foot. Light bluish ash above, with a dark dorsal stripe commencing at the snout, and not interrupted between the eyes; bifurcating about the middle of the trunk; a stripe on each side of this, and another on sides of head and body, making five distinct stripes anteriorly; lateral stripe with white line below. Body about an inch in length.

Syn. *Hyla triseriata*, Max. Prinz von Wied. Reise 1, (1839,) 249.

Hab. Michigan, Illinois, Wisconsin and the upper Missouri.

5. *Helocætes clarkii*, Baird.—Snout acute, projecting. Extremities somewhat dilated. Tibia half the distance between eye and anus. Foot but little longer, not nearly half the length of body. Above grayish brown or ash, with distinct large circular blotches. A dark band from snout through eye and tympanum down the sides, and a whitish line on the side of jaw. Size about one inch long.

Hab. Galveston and Indianola, Texas.

6. *Hyla richardii*, Baird.—Above uniform grass green; smooth; beneath white. Tibia considerably less than half the length of body. Hind foot less than arm from elbow. Less than one inch in length.

Hab. Cambridge, Mass.

7. *Hyla andersonii*, Baird.—Skin smooth but wrinkled; arm from elbow longer than hind foot. Above dull olive brown, as are all the exposed surfaces of the limbs when the animal is couchant; all the concealed surfaces, especially those in contact with each other, are thickly sprinkled with circular, yellowish white spots on a pale brown ground, seen also on the armpits and sides of body behind. A post-ocular dark vitta extended down the sides (where its lower

edge is indistinct) and sending a dark branch across the arm to the chin. No bars on the limbs. Body about two inches in length.
Hab. Anderson, South Carolina.

8. *Hyla eximia*, Baird.—Smooth above. Tibia not half the total length of body. Hind foot not longer than arm from elbow. Bluish above, with two dark longitudinal stripes; beneath white. A dark band from the eye along the sides, margined above and below by a white line, the latter reaching only to the arm, behind which the outline of the dark band is indistinct. Legs not banded. Body about an inch long.
Hab. City of Mexico.

9. *Hyla wauvletii*, Baird.—Nearly smooth above. Tympanum nearly as large as the eye. Tibia half as long as the body, longer than arm from elbow, which in turn exceeds the foot. Ash gray or olive, with an irregular cruciform dorsal blotch. A black spot on the side above the foreleg. A white spot under the eye. Thigh and leg with three transverse bands each. Their inner surfaces (when flexed) scarcely reticulated, but spotted with white upon a darker ground. Inside of tibia uncolored. Body two inches long.
Hab. Brownsville, Texas.

10. *Hyla affinis*, Baird.—Body rough. Tympanum two-thirds the size of eye. Tibia not quite half the length of the body, but reaching more than half way from anus to centre of eyes. Color ash gray or green, with numerous rounded dorsal blotches. Three transverse bands on each thigh and leg. No vermiculation on anterior and posterior faces of hind legs, nor on lower part of sides. A light spot under the eye. Web of hand extending only to the third joint of the second finger. Arm from elbow less than tibia, but longer than hind foot. About 1¼ inches long.
Hab. Northern Sonora.

RANIDÆ.

Teeth in upper jaw. Abdomen smooth. Two outer metatarsals free for most of length, or united only by membranes.

11. *Rana montezumæ*, Baird.—Head as wide as long. Body generally smooth, except pustulation on the sides and sometimes above. No fold of skin, either on the sides or around the tympanum. Tympanum about size of eye; but little variation with sexes. Large vocal vesicles on each side behind jaws. Tongue broad, cornua short. Palatine protuberances close together. Toes not webbed beyond middle of last phalanges on the external sides. Color purplish olive above, grayish below, with crowded spots or vermiculations of whitish all over the body. In young specimens, rounded, areolated, dark blotches on the back and foreleg. Size, that of *Rana pipiens* of Holbrook.
Hab. City of Mexico.

12. *Rana septentrionalis*, Baird.—Body stout, depressed. Skin not tuberculated, but uneven. A broad depressed ridge on each side of back; none intermediate; a branch of same round the tympanum, meeting a thickening from the jaw. Hand much longer than forearm. Femur and tibia nearly equal, about half the length of the body, and less than the hind foot. Foot large; terminal joint of middle toe free; that of the others free only on the inner side. Above light greenish olive, vermiculated with lighter, and with a few large dark blotches posteriorly. Beneath yellow, unblotched. No line on sides of the jaw. Two inches long.
Hab. Northern Minnesota.

13. *Rana sinuata*, Baird.—Body rather stout; tympanum three-fourths the size of eye. Palatine teeth small, ranging with the centres of inner nares. Skin pitted all over with minute pores, with scattered glandules beneath; an indistinct fold of skin on each side of back, none intermediate; granulation of buttocks indistinct. Femur not half the length of body, rather longer than tibia; hind foot considerably longer than the tibia. Above and on sides purplish brown, with

uations or coarse vermiculations of yellow. Beneath silvery white. Legs nsversely barred. Two and a half inches long.
Hab. Sacketts Harbor, N. Y.

14. *Rana pretiosa*, B. and G.—Female. Body thick and stout; head short, ader than long. Tympanum not two-thirds the length of the eye. Tongue ge. Palatine teeth minute, posterior to the inner nares. Skin leathery, co-red with asperities, except on inner surfaces, even on the sole of the foot. A pressed ridge of skin on each side, none intermediate; a glandular ridge along upper jaw. Femur not half the length of the body; tibia about equal to it, t shorter than the hind foot. Terminal joint of longest toe free, next margined, l web generally extending between the tips of the toes on one side, and the t articulation on the other. Shortest toe rather more than one-third the length the hind foot, both measured from the tarsus. Above yellowish brown, with nded dark blotches. Sides dusky; dorsal ridge lighter; a light line along the terior ridge of the upper jaw. Faint indications of a dark area about the npanum; a few spots about the nostrils. Beneath yellowish white, obsoletely rmorated with brown. About two and a half inches long.
Syn. *Rana pretiosa* B. and G., Proc. Acad. Nat. Sc. Phila., vi. 378.
Hab. Washington Territory.

15. *Rana cantabrigensis*, Baird.—Above yellowish brown. A dark vitta ough the eye, margined below by whitish. Lateral fold of skin light colored, is also a median dorsal line extending from the snout to the anus. A narrow ht line along the posterior faces of the thigh and leg. Tibia half the length body. General appearance and size of *R. sylvatica*.
Hab. Cambridge, Mass. (Collection of Prof. Agassiz.)

16. *Rana boylii*, Baird.—A broad depressed ridge of skin on each side of back. n finely tubercular above. Head broader than long. Tympanum scarcely dent, pustulated. Tibia more than half the length of body; hind foot less n half this length; webbed entirely to the horny tips; outer toe decidedly ger than the third. An elongated tubercle at base of inner toe, with another osite to it. Above dull reddish olivaceous, with indistinct blotches on the k, and fascia on the legs. Beneath yellowish, mottled anteriorly. Two inches g.
Hab. California (interior.)

17. *Scaphiopus couchii*, Baird.—Outer toe but little shorter than the third. id nearly as long as forearm. Above grayish ash, with dark markings. A k line down the back from each orbit, in connection with other markings, sing a slight similarity of pattern to *Hyla versicolor*. Beneath white. An h long.
Hab. Coahuila and Tamaulipas.

On Fossil Coniferous Wood, from Prince Edward Island.

By J. W. DAWSON.

Under the impression that any facts relating to the formation which has afled the interesting reptilian fragment recently described by Dr. Leidy in the rnal of this Academy, will prove interesting, I beg leave to communicate following results of microscopic examinations of the coniferous wood referred n my note appended to Dr. Leidy's paper.

may premise that Prince Edward Island, which extends in an east and west ection about 130 miles, with an extreme breadth of about 35 miles, consists ost entirely of bright red sandstones, similar to the matrix of Dr. Leidy's il, with occasional bands of red clay, conglomerate and arenaceous and conionary limestone. Over a large part of the island, these beds dip at very ll angles to the northward. There are, however, some tracts in which the s undulate to the southward and south-east. These red rocks, in their mine-character, much resemble the new red sandstone of Cornwallis and other

places in Nova Scotia, and Dr. Gesner, in his Report on the Geology of Prince Edward Island,* notices the occurrence of trap dykes at two localities on the northern coast, a circumstance which still farther increases the resemblance. There are, however, a few places in which beds occur which much resemble the upper parts of the coal formation of Nova Scotia, and it is in these localities chiefly, though I believe not exclusively, that the coniferous wood in question occurs, along with a few other vegetable fragments, for the most part very imperfectly preserved. Some interest, therefore, attaches to these fragments of fossilized wood, as a means of comparison between the oldest portions of the red sandstone formation of Prince Edward Island, and the inferior members of the coal formation on the opposite coasts of Nova Scotia and New Brunswick, in which coniferous wood is also of very frequent occurrence.

1. *Coniferous wood from Gallas or Gallows Point, west side of Orwell Bay.*—At this place, which I visited in 1842, the following beds appear in descending order, the dip being to E. S. E. at angles of 6° to 8°: red and brownish sandstones, gray sandstone with bands of concretionary limestone, and containing carbonized vegetable fragments, some of them resembling *calamites*, but without joints, gray and brown shales or indurated clays; brownish sandstone, with large trunks of trees silicified. One of these trunks measured three feet in its greatest diameter; they are prostrate and somewhat flattened. I have no doubt that these rocks underlie the ordinary red sandstones of the island, and Dr. Gesner, who examined them in 1847, takes the same view, affirming them to be carboniferous, and stating that he found in them *calamites* and *stigmaria*, which, if well characterized specimens, would go far to confirm that conclusion.

My specimens of fossil wood from this place are perfectly silicified, and of a dark clove-brown color. They are much fissured in the direction of the medullary rays, and the fissures are filled with flesh colored sulphate of barytes. Under the microscope, transverse slices show a somewhat dense tissue of quadrangular cells arranged in rows. Longitudinal slices in the direction of the medullary rays, show parallel elongated cells, medullary rays not strongly marked, and traces of hexagonal discs of the Araucarian type on the walls of the cells. Two rows of these discs occupy the whole breadth of a cell.

2. *Specimens from Des Sables and Crapaud.*—At these localities the only rocks seen are the ordinary red sandstones, and the coniferous wood is found only in loose fragments on the surface. From the large quantity scattered over the fields, and the general scarcity of travelled boulders in this part of the island, I have no doubt that it now lies over or near its original site. The specimens from this place are dense and without fissures, and have a structure quite similar to that of the wood from Gallas Point, though not in so perfect preservation.

3. *A specimen from some part of the south shore of Prince Edward Island*, now in the collection of the Puton Literary Society. This specimen was obtained from a person who stated that it was a portion of a large trunk. It still retains in its crevices remnants of the matrix of coarse reddish sandstone. It is cracked in lines radiating from the centre, and is perforated by numerous vermicular holes, now somewhat flattened, but which were probably the burrows either of *Teredines* or xylophagous larvæ. Some parts of this specimen retain their structure in a very perfect condition. It is of precisely the same character with that already described, and shows one or two rows of discs on each cell.

All these specimens probably belong to the same genus, and perhaps to the same species of coniferous trees; and they all differ materially from the coniferous wood of the coal formation. I have slices of the latter from various parts of New Brunswick, Nova Scotia and Cape Breton, some of them from the newest beds of the coal formation. All of them are of much coarser texture than the specimens from Prince Edward Island. The cells are wider, and usually with three or even four rows of discs, and the medullary tissue is more strongly marked. In the closeness of the cellular tissue, fewer rows of discs, and fineness of the medullary rays, the Prince Edward Island specimens, though distinctly of the Araucarian type, approach more nearly to the modern pines of this

* 1847.

country than to those of the coal formation. They therefore afford no proof that these lower members of the red sandstone formation of Prince Edward Island are of carboniferous date, but would rather tend to connect them with the overlying beds which have afforded the remains of the *Bathygnathus borealis*. The occurrence, however, in this position, of rocks so nearly resembling those of the upper coal formation, renders it probable that no very sudden or marked physical changes intervened between the deposition of the latter and that of the new red sandstones, and thus furnish an argument in favor of the *Permian* date of this last deposit.*

Description of a species of Crane found in Wisconsin, presumed to be new.

By WILLIAM DUDLEY, of Madison, Wisconsin.

GRUS HOYIANUS, *nobis.*

Form.—Size large; second primary longest, first and second nearly equal; tail two inches longer than the folded wings; numerous large feathers arise from the base of each wing, elevated and droop down over the tail, giving the bird an ostrich-like appearance. Head densely clothed with feathers to base of bill; no *naked skin.*

Dimensions.—Length of wing from flexure 23 inches; tarsi 11 5-10 inches; middle toe 5 inches, hind toe just reaches the ground; bill 5 inches.

Color.—Head and upper half of neck light ferruginous; on the breast, back and upper tail coverts are a few scattering feathers tipped with the same; primaries black, remaining parts white. Legs black.

Observation.—This fine large crane was killed on Sugar River, in Dane Co., Wisconsin, and is now in the Museum of the Wisconsin Natural History Association. Sex not known. It is named in honor of my worthy friend Dr. P. R. Hoy, of Racine, Wisconsin, whose untiring industry and zeal in Natural History have added much to science.

Description of Fossil Trees in the coal rocks near Greensburgh, Westmoreland county, Pennsylvania.

By ALFRED T. KING, M. D.

Throughout nearly the whole of Western Pennsylvania, but more abundant in particular localities, may be found fragments of immense silicified trees lying on the surface of the ground. About seven miles east of Greensburgh there is a remarkable locality. Here may be seen immense logs from six to eight feet long, and from one to four feet in diameter, strewed over acres of ground. After the closest examination, I have been unable to find any very clear indications of high vegetable organization in these silicified trees. Indeed I have been unable, after the closest scrutiny, to discover a single specimen of fossil plant in our vast carboniferous series, of higher organization than vascular *Cryptogamia*. I might, perhaps, except some specimens, which I first saw a few weeks since in Beaver county, Pa., of *Trigonocarpum?* This is the fruit of a tree, which some have supposed to be allied to the Palms; of this, however, there is still great doubt and uncertainty.

Many of the specimens of silicified wood contain numerous and beautiful crystals of quartz scattered throughout their interior structure, which would seem to indicate that the silicifying process must have taken place whilst the wood was immersed in water of high temperature.

Whilst excavating a tunnel on the Pennsylvania Railroad near Greensburgh, a stratum of very compact sandstone of about fifteen feet in thickness was opened, which contained vast quantities of trunks and limbs of trees, some permeated with silicious and pyritous matter, whilst others have left only their imprints, the woody matter having been converted into coal, which forms a thin

* For description of the Newer Coal Formation of Nova Scotia, see Journal of London Geol. Soc. vol. 1. p. 322; and Taylor's Statistics of Coal, p. 196.

but beautiful pellicle, covering the impressions of the plants. These trunks and limbs are of all sizes, from an inch to nearly three feet in circumference, strewed about, and piled upon each other in the most irregular manner, and so numerous that scarcely a fragment of rock was thrown out which did not contain either a vegetable impression or a silicified stem.

Although in the shale above, vast piles of detached fern leaves were found, belonging principally to the genus *Neuropteris*, accompanied with numerous impressions of *Calamites*, yet no species of fern was discovered in the sandstone, with the exception of two specimens, both of which belonged to distinct genera. The one was a *Pecopteris*, and the other was the *Cyclopteris trichomanoides*.

Among the numerous arborescent fossil plants which were found in this sandstone, was an entire tree of immense magnitude, lying prostrate, about four feet above the Pittsburgh seam of coal, and about thirty feet beneath the surface. The part which was removed measured twenty six feet in length, and two feet ten inches in circumference at the base. From the size of the two main branches which enter the rock on the opposite side, I infer that this tree may have been from forty to sixty feet in height. At the base, it was much flattened by the pressure of the superincumbent weight, but strange as it may seem, the branches still retained nearly their original cylindrical form. It was entirely enveloped in a coating of pure bituminous coal, varying from a quarter of an inch to one inch in thickness. Its interior was filled with sand, mixed with sulphuret and carbonate of iron, which much increased its weight, but there were no indications of vegetable structure. The thin vegetable band, which alone remained converted into pure bituminous coal, may have surrounded an axis of more perishable material, which, when the tree was removed from its original position by the storms or the waves, rapidly decayed. Its hollow interior would necessarily be filled with sand, broken shale or other sediment which was brought by large rivers into that turbulent sea, the bed of which was gradually subsiding. This view is corroborated by the fact, that the rock in which this plant is found imbedded, and which constituted its matrix, presents an entirely different appearance in color, and in some degree in lithological character, from that which fills the interior of the fossil tree. Although there were numerous, but irregular longitudinal flutings, both along the main trunk and its branches, yet I could discover no indications of those beautiful scars, so characteristic of *arborescent ferns*, and of the genus *Sigillaria*, which indicate the spots where the petioles of the leaves articulated with the stem; and hence I infer that this tree should not be referred to either of those families of plants.

The question naturally arises, to which of the three great divisions of the vegetable kingdom do these fossil trees belong. Do they belong to *arborescent ferns*, *gigantic palms* or lofty pines? Are they of exogenous or endogenous growth?

It has been said by fossil botanists, that true exogenæ and endogenæ have been found in the carboniferous rocks of Europe. I have, therefore, been much interested in discovering some clear indications of these highest forms of vegetable structure, in the coal measures in this country; but I have thus far failed, unless the specimens to which I have already alluded, should on further examination, prove exceptions.

I am aware that M. Brongniart has placed the Sigillariæ among the exogenæ, but with all due deference to his high authority, I must say that I have been unable to find in that family of fossil plants any evidence of pith, bark, concentric rings, medullary rays, or other indications of so high a structure.

Since writing the above, I have made another examination of the specimens of fossil trees, and believe that I was at first mistaken in regard to some of them being branches. The rock in which they were found had been blasted, and consequently the fossil trees were much broken. The largest entire piece which I saw was not more than four or five feet in length. These facts may have some bearing upon their position in the vegetable scale.

Description of fossil fruit found in the Carboniferous Rocks of Beaver County, Pa.

By ALFRED T. KING, M. D., of Greensburg, Pa.

Mr. Mendenhall, of New Brighton, showed me several specimens of fossil fruit imbedded in solid sandstone, belonging to the carboniferous series of that neighborhood. And through the kindness of George W. Tyler, Esq., editor of the Boston Herald, I procured a specimen for description.

These specimens bore considerable resemblance, both in form and size, to the fruit of the Butternut, *Juglans cinerea*.

There have been found in the coal strata in Leicestershire, England, a number of species of a three cornered fruit, to which the generic name *Trigonocarpum* has been given. Possibly, the specimen which I am about to describe, may be referred to that genus.

This is a drupaceous fruit, of an ovoidal shape, from two inches and a quarter to three inches in length, and from one inch and three quarters to two inches and a half in breadth, and weighs from two and a quarter to three ounces. Its external surface is nearly covered with a thin coating of bituminous coal; a large portion of which, however, adheres to its matrix. This coal was formed, I presume, by the carbonization of its *pericarp*. Its interior is filled with coarse grained sand, similar to the rock in which it was imbedded. The *epicarp* is formed of three nearly equal valves, joined by three prominent sutures, uniting in a point at the apex. Between the sutures are seen a number of nearly parallel and prominent longitudinal striæ, which gracefully curve so as to meet in a point at the distal extremity.

In all the specimens which I saw, there is a deep depression or excavation at the base, where the fruit was attached, in all probability, to a peduncle.

This fruit is not *triquetrous*, as the name *Trigonocarpum* seems to indicate, but strictly *ovoidal*, sometimes nearly *obovoidal*, having three prominent sutures joining the three valves of the epicarp.

It was found in Beaver County, Pa., about three miles from the town of New Brighton, in a thick stratum of compact, but coarse grained sandstone, near the middle of the carboniferous series.

Should this belong to the genus *Trigonocarpum*, I propose calling it *Trigonocarpum carbonarium*.

Descriptions of new Birds of Northern Mexico.

By D. N. COUCH, U. S. Army.

1. CORVUS CRYPTOLEUCUS.

Female. *Form.*—Bill short, high at base, compressed; nostrils covered with flat, bristle-like feathers, which are about two-thirds as long as the bill. Wings long, fourth primary longest, first short; tail moderate, rounded. About the size of or rather larger than the common crow of North America, (*Corvus americanus*.)

Color. Entirely black, with violet and purple reflexions. Feathers of the neck before and behind, and of the back, pure white at their bases and for about two-thirds of their length, being, in fact, white tipped with black. Bill and feet black. Iris yellowish brown.

Total length from tip of bill to end of tail 18½; wing 13½; expanse of wings 33; tail 8 inches.

Locality. State of Tamaulipas, Mexico; March, 1853.

Obs. Not abundant, though occasionally seen.

2. ICTERUS SCOTTII.

Male. Bill moderate, scarcely curved; tip acute, not compressed. Legs and toes moderate. Wings rounded; second and third primaries longest, first shorter than the fourth and longer than the fifth.

Color. Head, neck, breast, forehead, wings, tip of tail and upper central tail feathers to tip of upper coverts, black. Upper primary and under wing coverts,

sides, under surface of body, under and upper tail coverts, rump, and posterior portion of back, bright yellow; sides under the wings greenish yellow. Tips and bases of secondary wing coverts white, forming along the tips a defined stripe, the white on the base being covered by the primary coverts; exterior edge of tips of tertiary quills white; tips of exterior tail feathers slightly tipped with dull white. Bill black; base of lower mandible bluish lead. Feet very dark slate.

Total length 8½; tip to tip 11¾; wing from carpal joint 4; tail 3¾ inches.

Locality. Western New Leon and Coahuila; April, 1853.

Obs. Plentiful, common. Song varied and highly melodious. An immature specimen of this species has the black on the head and neck maculated with olive; wings, central tail feathers and tips dark ferruginous, and the yellow substituted by a light olive, which is darkest on the rump and lightest on the abdomen, where it is dull yellow.

I have named this handsome bird as a slight token of my high regard for Major General Winfield Scott, Commander in Chief of the U. S. Army.

3. STRUTHUS ATRIMENTALIS.

Male. Small; bill short, conic; wing short, rounded, third and fourth primaries longest and nearly equal; tail long, graduated: legs slender.

Color. Chin, lores and narrow frontal band black. Head above and neck rump and entire under parts cinereous, palest and nearly white on the abdomen. Back ferruginous, each feather with a dark central line; quills and tail feathers brownish black, both edged externally with white. Bill light brownish red; feet dark; iris dark brown.

Total length 5½; wings 2½; wings from tip to tip 7½; tail 3 inches.

Locality. Aqua Nueva, State of Coahuila; May, 1853.

The Report of the Publication Committee for 1853 was read and adopted.

ELECTION.

John Vaughan Merrick, Esq., and John J. Vanderkemp, M. D., of Philadelphia, were elected *Members*, and Prof. Daniel Kirkwood, of Newark, Delaware, and Waldo J. Burnett, M. D., of Boston, Mass., were elected *Correspondents*.

Journal für Chemie und Physik. Herausg. von Dr. J. S. C. Schweigger. 1825. From the same.

Denkschrift zur Säcularfeier der Universität Erlangen. 23—25 Aug., 1843, im Namen der vereinten Univers. Halle und Wittemberg, dargebracht von Dr. S. C. Schweigger. From the same.

Oratio in Acad. Frid. Halensi cum Vitebergensi consociata Ædium Acad. inaug. causa 31 Oct., 1834, habita ab J. S. C. Schweigger. From the same.

Ueber Medicinische Missionsanstalten. Von Prof. Schweigger in Halle. From the same.

Ueber die Natur der Sonne. Vom Dr. J. S. C. Schweigger. From the same.

Bruchstucke aus dem Leben des als Opfer seiner Wissenschaft gefallenen Dr. A. F. Schweigger. From the same.

The Journal of Botany. By Sir W. J. Hooker. 4 vols. 8vo. From Dr. R. Bridges.

Icones Plantarum. By Sir W. J. Hooker. 4 vols. 8vo. From the same.

Transactions of the American Philosophical Society. Vol. 10, new series, Part 3. 4to. From the Society.

Palæontology of New York. Vol. 2, 4to. By James Hall. From the Author.

Notices of some new species of Mosses from the Pacific Islands, in the Collection of the U. S. Exploring Expedition, Capt. Wilkes. By W. S. Sullivant. From the Author.

Annals of Science. February, 1854. From the Editors.

Virginia Medical and Surgical Journal. Jan., 1854. From the Editors.

Report of the 23d Exhibition of American Manufactures, 18th Oct. to 3d Nov., 1853, by the Franklin Institute. From Dr. B. H. Rand.

Report to the Board of Regents of the University of Michigan, Nov. 15, 1853. By Henry P. Tappan, D. D. From the Author.

Dr. Wilson presented the following, on the usual condition :

Traité de Paléontologie. Par F. J. Pictet. 2de edition, Tome 2me. 8vo and Atlas 4to.

Comptes Rendus. Tome 37, Nos. 22, 23, 24.

Revue et Magasin de Zoologie. 1853, No. 11.

Annales de Chimie et de Physique. 2me serie, Dec., 1853.

Annales des Sciences Naturelles. 3me serie, Tome 19, No. 6.

Journal of the Franklin Institute, Jan., 1854.

London Athenæum for December, 1853.

Illustrations of the Birds of California, Texas, &c. By John Cassin. Part 3, 8vo.

February 14th.

Proceedings of the Royal Society of Edinburgh. Vol. 3, No. 43. From the Society.

Bulletin de la Société Imperiale des Naturalistes de Moscou. An. 1852. Nos. 1, 2. From the Society.

Proceedings of the American Philosoph. Society, July to Dec., 1853. From the Society.

On Darlingtonia Californica, a new pitcher plant, from Northern California. By John Torrey, M. D. From Dr. W. Darlington.

Epistolæ C. A. Linné ad Bernardum de Jussieu ineditæ et mutuæ Bernardi ad Linnæum. Curante Ad. de Jussieu. From Dr. Asa Gray.

Sur les Sauterelles et les moyens a les detruire, par Victor Motchoulsky. From the Author.

Sur les causés physiques du principe du Cholera et ses rapports avec divers autres phénomènes dans la nature. Par V. Motchoulsky. From the same.

The following were presented by Dr. Wilson, on the usual condition ;

Comptes Rendus, Tome 37, Nos. 25, 26. Tome 38, No. 1.

Annales des Sciences Naturelles. 3me serie, Tome 10, No. 3.

Etudes sur les Echinides Fossiles. Par M. Gustave Cotteau. Livs. 11, 12.

Conchologia iconica. By Lovell Reeve. Parts 124, 125.

London, Edinburgh and Dublin Philosophical Magazine. January, 1854.

Annals and Magazine of Natural History. January, 1854.

Insecta Britannica. Diptera. Vol. 2. By Francis Walker. 8vo.
Journal of the Franklin Institute for February, 1854.

DONATIONS TO MUSEUM

In March and April, 1854.

March 14th.

Cygnus buccinator (mounted.) Presented by Mr. J. D. Sergeant.

Six casts in plaster, of bones of the feet of Dinornis. Presented by Dr. Wm. Blanding, Jr.

Hypudæus amphibius, (black variety,) from Scotland. From Dr. G. Watson.

April 4th.

A collection of Bird skins and Reptiles from Honduras. Presented by Dr. Woodhouse.

A specimen (in skin) of the American Beaver (Castor fiber.) From the Smithsonian Institution.

Cottus virginianus, from Absecom, N. J. From Mr. John Krider.

Fiber zibethicus, (var.); from Absecom, N. J. From the same.

Proteus anguinus. From the Rev. Mr. Wilmer.

Fluor and Calc Spar, Lowville, N. Y. From Mr. Rice.

Semi-opal, from Honduras. From Dr. Woodhouse.

Copiapite, from Copiopo, Chili. From Dr. Lawrence Smith.

April 11th.

Mounted specimens of Accipiter Cooperi and Haliætus leucocephalus, and an Alligator skin. Presented by Mr. J. Krider.

Equisetum, of very large size, from Buenos Ayres. From Dr. H. W. Kennedy.

April 18th.

Procellaria capensis, from Buenos Ayres. From Dr. H. W. Kennedy.

Specimen, in skin, of Aptenodytes ———, and one of Carbo ———, from the South Pacific. Presented by Dr. J. Horwitz, U. S. N., through D. W. P. C. Barton.

Pod of Cassia Brasiliana. From Dr. Woodhouse.

Mounted specimen of Canis magellanicus, from Peru. Presented by Mr. W. S. Vaux.

DONATIONS TO LIBRARY

In March and April, 1854.

March 7th.

Verhandelingen der 1ste Klasse van het Hollandsh Instituut van Wetenschappen. Lit. &c. te Amsterdam. Deel 1, 2; 4to. From the Institute.

Nieuwe Verhandelingen der 1ste Klasse van het Koninklijk-Nederland. Inst. Deel 9, 10 (1, 2) 11, 12, 13; 4to. From the same.

Verhandelingen der 1ste Klasse van het Konin. Nederland. Inst. 3de Reeks. Deel 1, 2, 3, 4, 5; 4to. From the same.

Tijdschrift voor de Wis-en Natuurkundige Wetenschappen, uitgegeven door de 1ste Klasse van het k. Nederland. Inst. Deel 4, 5; 8vo. From the same.

Het Instituut of Verslagen en Mededeelingen, uitgegeven door de vier klassen van het k. Nederland. Inst. 1841, No. 2; 1842, Nos. 2, 3; 1843, 1844, 1845, 1846; 8vo. From the same.

Jaerboek van het k. Nederland. Inst. 1847, '48, '49, '50, '51; 8vo. From the same.

J. Blanken, beschouwing over de uitstrooming der Rivieren in de Zee. From the same.

Verhandeling over den Landbouw; door J. Serrurier. From the same.

May 2d, 1854.

Vice-President BRIDGES in the Chair.

A letter was read from the Portland (Maine) Society of Nat. History, dated April 20th, 1854, acknowledging the receipt of an entire copy of the Publications of the Academy, presented in accordance with a late resolution.

Also a letter from the American Philosophical Society, dated April 27, 1854, acknowledging the receipt of the last number of the Journal and of the Proceedings.

May 9th.

Vice-President BRIDGES in the Chair.

Dr Le Conte presented a paper for publication in the Proceedings, entitled "Synopsis of the Cucuiides of the United States," which was referred to Mr. Cassin, Dr. Zantzinger, and Dr. Rand.

Dr. Le Conte exhibited a fragment of the jaw of a new Pachyderm from the Tertiary of Virginia, 80 or 90 miles S. W. of Alexandria, and characterised it as a new genus allied to Dicotyles.

Mr. Wm. Parker Foulke asked the attention of the Academy to a Lecture by Mr. Hugh Miller, recently republished in the United States, under the title, "The Two Records, the Mosaic and the Geological;" and made some remarks upon the importance of maintaining a careful scrutiny of the logic of the natural sciences. The cultivators of those sciences are particularly interested at this time in preventing any misapprehension of the results of their researches, as there is a prevailing disposition to "reconcile" these by extreme processes with the popular interpretation of certain texts of the Mosaic history. Unfinished investigations of the students of nature are used as complete evidence; and provisional generalizations are employed as fixed premises, from which are drawn conclusions very inconvenient to subsequent inquirers and writers. Thus both religion and natural science are wronged.

Mr. Miller teaches that in the attempt to reconcile the two "records," there are only three periods to be accounted for by the geologist, viz., "the period of *plants*, the period of *great sea monsters and creeping things*: and the period of *cattle and beasts of the field*;" that the first of these "periods" is represented by the rocks grouped under the term *palæozoic*, and is distinguished from the *secondary* and the *tertiary*, chiefly by its "gorgeous flora;" and that "the geological evidence is so complete as to be patent to all, that the first great period of organized being was, as described in the Mosaic record, peculiarly a period of herbs and trees yielding seed after their kind." The general reader, not familiar with the details of geological arrangement, could not fail to infer from such a statement, used for such a purpose, that the palæozoic rocks are regarded by geologists as forming one group, representative of one period which can properly be said to be distinguished *as a whole* by its gorgeous flora; and that it is properly so distinguished *for the argument in question*. It was familiar to the Academy as well as to Mr. Miller, that from the carboniferous rocks downward (backward in order of time) there have been discriminated a large number of periods differing one from another in mineral and in organic remains; and that the proportion of the carboniferous era to the whole series is small, whether we regard the thickness of its deposits or its conjectural chronology. It is only of this carboniferous era, the latest of this series, that the author's remarks could be true; and even of this, if taken for the entire surface of the earth, it could not be truly asserted that

"the evidence is so complete as to be patent to all" that the quantity of its vegetable products distinguishes it from the earth's surface during the era in which we live. To confound by implication all the periods termed palæozoic, so as to apply to them as a whole what could be true, if at all, only of the carboniferous period, is a fallacious use of a generalization made for a purpose and upon a principle not properly available for the writer's argument. The high esteem in which the character of Mr. Miller is deservedly held by readers in the United States, where his writings are widely circulated; and the respectful manner in which his interesting researches have occasioned his name to be mentioned by authors eminent in the department of geology, give to such of his writings as bear upon the biblical question, peculiar importance with reference to the community at large.

Mr. F. urged the duty of insisting upon the maintenance of regular methods of exposition as well as of investigation, leaving apparent inconsistencies, which are beyond our means of explanation, to be "reconciled" by our successors with the aid of larger accumulations of knowledge than we possess. The progress of science has been retarded by the assumption that every discovery must be immediately proved to be harmonious with certain other portions of our knowledge. A due regard to the sacredness of religious faith and to the natural sensitiveness of the popular mind will secure respectful caution; but it is most consistent with the acknowledged imperfection of human faculties, and at the same time most worthy of the true dignity of science, to assume that ultimately all truths will be found to agree; and meantime, strictly adhering to the canons of evidence, to explore courageously the great field open to us. We ought especially to avoid generalizations which have no sound philosophical principle, or which are framed or applied merely from a desire to appease over-zealous minds ignorant of the facts already ascertained. This obligation is stronger in proportion to the degree of confidence given to the teacher in any case, and also in proportion to the limitation of access to other sources of information.

May 16th.

Vice-President BRIDGES in the Chair.

Letters were read—

From the Imperial Soc. of Naturalists of Moscow, dated May 30th, June 1st, and September 13th, 1853;

From the Kaiserlichen Akad. der Wissenschaften, dated Vienna, 10th Nov., 1853;

From the Royal Academy of Sciences of Stockholm, dated 23d Nov., 1853;

From the K. K. Geologischen Reichenstalt, dated Vienna, 22d Nov., 1853, severally transmitting their publications announced this evening by the Librarian.

From the Royal Acad. of Sciences of Stockholm, dated Nov. 1, 1853;

From the K. K. Geologischen Reichenstalt, dated Vienna, 21st Nov., 1853;

From the Smithsonian Institution, dated Washington, May 10th, 1854; and

From the Portland Society of Nat. History, dated Portland, Maine, 11th May, 1854, severally acknowledging the receipt of the Publications of the Academy.

Dr. Le Conte presented a paper for publication in the Proceedings, entitled "Notes on some new Coleopterous Insects from the Collections

of the United States and Mexican Boundary Commission." Referred to Mr. Cassin, Dr. Ruschenberger and Dr. Leidy.

Dr. Le Conte also presented a paper from Mr. Charles Girard, on a new species of Salmonidæ from the Northeastern part of the United States, which was referred to Dr. Le Conte, Dr. Leidy, and Dr. Hallowell.

Dr. Brinton desired to draw the attention of the Academy to a new mode which he had recently devised and practised in the preparation of anatomical specimens, several of which he exhibited.

Anatomical specimens, he said, had hitherto been preserved either in the wet state, or else dried; both plans were open to objections.

If animal tissues be immersed in alcohol, or other preservative fluids, their color becomes blanched, their structure condensed, and consequently their size and shape to a certain degree modified; and at the same time they present inconveniences for demonstration; whilst in the dry state, as for example, in the ordinary dried preparation of our cabinets, the parts are so shrunken and changed, as to convey but an imperfect idea of their primitive relations.

As this shrinkage of the tissues, and the decomposition are dependent most probably upon atmospheric influence, Dr. Brinton stated that it had occurred to him some time since, that should he be able so to exclude the air, as to prevent all evaporation from taking place, he would perhaps succeed in preventing, not only the desiccation of the part, but also its decomposition.

Influenced by this idea, he had commenced a series of experiments, and the success up to this time accompanying them, had led him to draw the attention of the Academy to the subject.

His object being to encase hermetically every portion of his specimen, Dr. Brinton remarked that he had selected for his earlier experiments, a solution of gun cotton in ether, the ordinary collodion. This he applied by means of a brush over every portion of the external surface of his preparation. The ether quickly evaporating, a thin film of the cotton was deposited upon and in all the interstices of the tissue. This process was repeated until a layer of sufficient thickness had been obtained; successive coatings of copal and shellac varnishes were then applied, so as to render to the preparation a certain degree of firmness and stiffness.

But it soon became evident to him that collodion was not entirely suited for the generality of objects, especially for those of any considerable bulk. It possesses too slight a degree of tenacity, and is liable to become easily chipped and fissured.

It was necessary, therefore, to employ some other material, and a solution of gutta-percha in benzole was selected; this was applied in a similar manner over the object to be preserved. The pellicle left by the evaporation of the benzole was tenacious, dense, and could be increased to any desired thickness. Single layers were transparent, suiting admirably for layers of fascia. For the encasement of the adipose tissue, collodion was still employed.

The thick coating, however, which it was considered necessary to apply upon the muscular mass, was of course opaque; hence, it became of importance to resort to an artificial coloring process, and for this purpose, collodion stained with the wood of the Pterocarpus santalinus, (the ordinary red saunders,) was found to answer admirably. The color resulting imitated closely that of fresh muscle. The preparation was then completed by the repeated application of copal and shellac varnishes.

Dr. Brinton explained to the Academy, that he did not present his specimens as tried and perfected preparations, for as yet they had attained the age of but some twenty days; but merely as evidences of the application of a new principle to the preparation of anatomical objects. Time was required to test its value.

Whether or not any internal decomposition could take place in consequence of the retention of a residual amount of air, Dr. Brinton could not state; but he doubted that such would be the case, to a degree sufficient to affect the contour of the specimen. Should, however, such a result ensue with regard to the specimens upon the table, still his experiments had shown that the process was ap-

plicable to any tissues which had been injected or soaked with a solution of the chloride of zinc, or any other antiseptic. Here decomposition would be impossible, and the gutta-percha was certainly sufficient to prevent the shrinking consequent on evaporation.

Dr. Brinton then stated that he was still experimenting, and had succeeded in procuring a colorless solution of gutta-percha in benzole and in chloroform, which would supersede the use of the collodion for the adipose matter. These transparent solutions would doubtless be applicable to the preparation of dissections of the nervous system, and to pathological structures. He stated also that he thought possibly an extension of this principle might hereafter be made subservient to the preservation of any fresh animal tissue. Further results would be submitted to the Academy.

May 23*d*.

Vice-President BRIDGES in the Chair.

Letters were read—

From Dr. Wm. Wirtenweber, dated Prague, 30th Oct., 1853, transmitting several of his works, acknowledged this evening.

From Dr. W. D. Hartmann, dated West Chester, Pennsylvania, May 16, 1854, acknowledging the receipt of his notice of election as a Correspondent.

Dr. Le Conte presented a paper by Mr. C. Girard, and intended for publication, entitled "A list of North American Bufonides, with diagnoses of new species." Referred to Dr. Hallowell, Dr. Leidy, and Mr. Hanson.

Dr. Leidy called the attention of the members to specimens of four vertebræ of a huge extinct saurian, from near Greenville, Clark Co., Arkansas. They had been kindly loaned by Mr. W. F. Roberts, an agent of the Arkansas Mining Company, who had discovered them with numerous others. Dr. L. stated, that in his late visit to St. Louis, Mr. Albert Koch, the industrious collector of fossil remains, had exhibited to him a collection of bones from the same State, and apparently of the same animal, which he was on the eve of sending to Berlin.

The specimens on the table are remarkable for the robust transverse processes, which project laterally from the lower part of the body, and terminate in a large facet for the articulation of a rib. The bodies are cylindroid, and are terminated by slightly concave or nearly flat articular surfaces. The sides of the body are moderately concave, and have an acute margin at the articular surfaces. On each side of a median prominence of the under side of the body a large vascular foramen exists.

These vertebræ resemble those of the *Cimoliasaurus magnus*, from the green sand of New Jersey, described previously in the Proceedings of the Academy,* but in that the large transverse process is cylindrical, while it is compressed cylindroid in the Arkansas saurian, and probably this latter belongs to a distinct genus, for which the name *Brimosaurus grandis* is proposed. The bones are embedded in a hard limestone with mollusca, and they probably belong to the cretaceous or to the eocene period. One of the most perfect of the vertebræ presents the following measurements:

Length of the body	3½	inches.
Depth of articular surfaces . . .	5	"
Breadth of " " . . .	6	"
Length of the spinal arch . . .	3	"

References of Plate II.

Figs. 1—3, Brimosaurus grandis.
" 4—6, Cimoliasaurus magnus.

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* Vol. v. p. 325.

1-3 Brumosaurus grandis, Leidy

4-6 Dimodosaurus magnus, Leidy

May 30th.

Vice President BRIDGES in the chair.

The Committees on Dr. Le Conte's papers, read 9th and 16th inst., on Mr. Charles Girard's papers, read 16th and 23d inst., severally reported in favor of their publication in the Proceedings.

Synopsis of the Cucuiides of the United States.

By JOHN L. LE CONTE, M. D.

CATAGENUS Westwood.

1. C. rufus Westw. Zool. Journ. 5, 221. *Cucujus rufus* Fabr. Ent. Syst. emend. suppl. 123; Syst. El. 2, 93. Oliv. 74 bis, tab. 1, fig. 3.

Middle, Southern and Western States. This species varies in size from ·18 to ·55 of an inch. The posterior angles of the thorax are usually prominent, on account of the sinuosity of the sides near the base; sometimes this sinuosity is very faint, then the posterior angles, although rectangular, are not prominent. Newman's C. punctico llis (Ann. Nat. Hist. 2, 398) is described as having but 6 striæ on each elytron, (the 5th and 6th striæ are said to be indistinct.) Now, in some specimens, which cannot be separated from C. rufus, the fifth and sixth striæ are not well marked, but in all that I have seen the seventh stria is quite obvious. As the elytra are declivous at the sides beyond the seventh stria, I think it probable that this seventh stria is constant in the genus, in which case there is no reason why Newman's species should not be united with C. rufus.

CUCUIUS Fabr.

1. C. clavipes Fabr. Gen. Ins. Mantiss. 233, (1790); Ent. Syst. emend. 1, 1, 94. Olivier, Enc. Méth. 6, 242, (1791); Ins. 74 bis, tab. 1, fig. 1.

Middle and Western States, not rare; found principally under the bark of Liriodendron, but not confined to that tree. This species is omitted in Fabricius' Systema Eleutheratorum.

2. C. puniceus Mann. Bull. Mosc. 1843, 303. Er. Ins. Deutschl. 309.

Sitka; I have not seen this species. By an oversight, Mr. White, in the British Museum Catalogue, quotes Motschulsky for the name.

By another oversight in the same Catalogue, C. sanguinolentus and hæmatodes, European species, are mentioned as found in North America, while our common species, C. clavipes, is said to inhabit South America. Reference to these errors is perhaps needless, as attention has already been called to them by Schaum, (Bericht, &c. 1851, p. 55,) but they are merely mentioned in this place for the information of those to whom Schaum's Report is not accessible.

PEDIACUS Shuckard.

1. P. planus, depressus, fuscus, opacus, dense punctatus tenuiter pubescens, fronte bifoveata, thorace latitudine vix breviore, antrorsum paulo angustato, lateribus subrepandis pone medium oblique emarginatis, angulis posticis prominulis, elytris punctulatis lateribus declivibus, stria suturali profunda. Long. 12—·14.

Silvanus planus Le Conte, Agassiz' Lake Superior, 223.

Lake Superior, rare. The fourth, sixth and eighth joints of the antennæ are a little smaller than the third, fifth and seventh; the last three joints are twice as wide as the eighth. The anterior angles of the thorax are rounded. One specimen is paler colored and almost rufous.

2. P. subglaber, depressus, testaceus, nitidus, vix subtilissime pubescens, capite thoraceque punctatis, fronte excavata, thorace latitudine paulo breviore, lateribus subquadridentatis (denticulo postico ante basin posito) disco late bimpresso, elytris obsoletius punctatis lateribus elevatis, margine sulcato, stria suturali distincta. Long. ·14.

One specimen, North Carolina, Mr. Zimmermann. The antennæ are a little

shorter than in P. planus, and the inequality of the joints from the fourth to the eighth is not as obvious. In some lights the elytra have the appearance of being faintly striate. The impressions of the thorax consist of two longitudinal ones concave outwards, which are connected near the base and apex by transverse impressions.

3. P. subcarinatus Mann. Bull. Mosc. 1852, 363. Russian America; (unknown to me.)

LÆMOPHLŒUS Er.

A. Frons antice trisinuata.

1. L. biguttatus, latiusculus depressus, supra piceus, parum nitidus subtiliter pubescens, capite thoraceque confertim punctatis, elytris confertim punctatis striis utrinque 4 profundis, suturali antice minus distincta, macula utrinque ante medium testacea ornatis; thorace utrinque linea profunda insculpto, lateribus late rotundatis subrepandis. Long. ·1—·15.

Le Conte, Agassiz' Lake Superior, 223, (1850.)

White, Brit. Mus. Cat. (1851) p. 5.

Cucujus biguttatus Say, Journ. Acad. Nat. Sc. 5, 267.

Læmophlæus bisignatus Guérin, Icon. Règne An. 205.

A common species found in the Middle and Southern States, and as far west as Nebraska. The under surface is frequently rufous, but is sometimes as dark as the upper surface. As this species is more densely punctured than the next, and agrees in this respect with the European L. monilis (*Cuc. bipustulatus* Panz.) with which Say compares it, I have concluded that this is really Say's species; the typical specimens in the Melsheimer collection render this view certain.

The head of the male is as wide as the thorax, and the antennæ two-thirds as long as the body.

2. L. fasciatus, latiusculus depressus, rufus nitidus glaber, capite thoraceque modice punctatis, hoc lateribus rotundato vix repando, utrinque linea profunda insculpto, elytris nigris, striis utrinque 4 profundis, suturali antice indistincta, interstitiis parce subseriatim punctulatis, macula utrinque ante medium testacea ornatis. Long. ·1—·18.

Melsheimer, Proc. Acad. Nat. Sc. 2, 113.

Middle and Southern States to Texas; the head of the male is very large.

3. L. adustus, læte rufus, paulo convexus, latiusculus, nitidus glaber, capite thoraceque punctatis, illo canaliculato, hoc lateribus rotundatis postice sinuatis, angulis posticis prominulis, linea tenui utrinque insculpto, elytris nigris, basi triangulariter læte rufis, tenuiter multistriatis, striis punctatis, interstitiis vix parce punctulatis, apice rufescente. Long. ·1.

A unique male specimen of this beautiful species, found in York Co., Pennsylvania, was kindly given me by Dr. Melsheimer under the name here adopted. Body above and beneath bright rufous, shining, glabrous. Head as wide as the thorax, slightly convex, finely, moderately densely punctured; vertex finely channelled; before the eyes is a fine transverse arched line; the outline of the front is concave each side and emarginate in the middle, which is not so much produced as in the two preceding; the labrum is short; mandibles long and slender, emarginate at tip. Antennæ moderately stout, nearly as long as the body. Thorax twice as wide as long, considerably narrowed at the base, sides strongly rounded, sinuate near the posterior angles, which are sharp and prominent; disc moderately convex, finely punctured, with the lateral line not strongly impressed. Elytra not wider than the thorax, moderately convex, with 7 or 8 very fine striæ, on which are placed moderately large punctures; the interstitial spaces are marked with a few very fine punctures, which on the sutural space form a somewhat regular series; their color is black, with a large, common, triangular, rufous spot at the base, which along the suture extends one-third the length; the apical margin is slightly reddish. The scutellum is transverse, without any distinct apical angle.

B. Frons medio producta, vel late emarginata vel truncata; scutellum triangulare.

4. L. bullatus, elongatus, depressus testaceus, nitidus glaber, thorace latitudine non breviore, lateribus rectis, postice subangustato, parce punctato, linea utrinque profunda exarato, dorso bulla magna lævi paulo convexa impressione minus profunda definita ornato, elytris obsolete striato-punctulatis. Long. ·07.

One female found at the junction of the Colorado and Gila Rivers, California. The large, slightly elevated, dorsal convexity of the thorax will readily distinguish this species. The head seems to be nearly smooth, and the anterior transverse line is distinct; the antennæ are a little more than half as long as the body, and their joints are rounded.

5. L. nitens, elongatus, depressus, testaceus, nitidus, glaber, thorace quadrato, lateribus fere rectis, obsoletissime parce punctulato, linea utrinque profunda exarato, elytris subtilissime seriatim punctulatis, stria suturali postice tenuiter impressa. Long. ·08—·09.

Abundant at the Colorado River, California. The head is finely and sparsely punctulate, the vertex is slightly channelled, and the anterior transverse line is deep; in the male the head is as wide as the thorax, and the antennæ are as long as the body, with the first joint equal to the two following united.

6. L. Zimmermanni, elongatus, depressus, testaceus nitidus glaber, capite thoraceque parce punctulatis, hoc latitudine fere longiore, lateribus rectis, angulis anticis prominulis, linea utrinque profunda exarato, elytris subtiliter striato-punctulatis, sulco laterali valde profundo. Long. ·07—·09.

Pennsylvania and Maryland, Mr. Zimmermann; Illinois, Mr. Willcox. This very small species is readily distinguished from the next by the finer punctuation and the absence of the outer marginal line of the thorax.

7. L. punctatus, elongatus, depressus, testaceus nitidus, glaber, capite thoraceque sat dense punctatis, hoc latitudine paulo breviore, postice subangustato lateribus fere rectis, lineis utrinque lateralibus duabus, elytris tenuiter 4 striatis et seriatim punctulatis, sulco laterali profundo. Long. ·07.

8. Carolina, Mr. Zimmermann. The small punctures of the elytra appear to be near the striæ, but not upon them, and form two series between the striæ. The antennæ of the male are as long as the body, and the first joint is as long as the head, or about equal to the three following united. The outer marginal line of the thorax is not distinct.

9. L. geminatus, elongatus, depressus, rufo-testaceus, nitidus, glaber, capite thoraceque densius punctatis, hoc latitudine non longiore, lateribus rectis, postice non angustato, utrinque bistriato, elytris tenuiter striatis, striis punctulatis, sulco marginali profundo. Long. ·06.

Louisiana and Georgia, Dr. Schaum. The outer stria of the thorax is distinct, but does not reach the base. The antennæ of the female are two thirds as long, those of the male almost as long as the body; the first joint is equal to the two following united in the female, and is a little longer in the male. This species is very closely related to the last, but seems, by the difference in the form of the thorax and by the differences in the antennæ and elytra, to be properly separated.

10. L. modestus, elongatus, depressus, testaceus nitidus, glaber, capite thoraceque parcius punctatis, hoc quadrato, lateribus antice rotundatis, postice subangustato, linea laterali profunda utrinque notato, elytris striis minus impressis distincte punctatis. Long. ·08.

Cucujus modestus Say, Journ. Acad. Nat. Sc. 5, 268.

Laemophlœus singularis White, Brit. Mus. Cat. 7, (1851.)

Georgia and South Carolina. The antennæ of the male are a little longer than the body, and the elytra are shorter than in the female. The first joint of the antennæ in both sexes is as long as the two following united.

11. L. puberulus, elongatus, depressus, testaceus, nitidus sat dense subtiliter pubescens, thorace quadrato, latitudine subbreviore lateribus fere rectis,

postice subangustato, subtiliter punctulato, linea utrinque laterali distincta, disco late impressa, elytris tenuiter striatis, vix punctulatis. Long. ·05—·07.

Colorado River, California, abundant. The head is very finely punctulate, and is distinctly channelled posteriorly; the discoidal impression of the thorax is very faint, but it causes the anterior margin, in particular lights, to appear slightly elevated. The male only differs from the female by the broader head and longer and thinner antennæ; in both sexes, the first joint of the latter, although thicker, is but little longer than the second.

C. Frons vix producta, medio emarginata; labrum breve, transversum.

12. L. cephalotes, elongatus depressus, niger nitidus glaber, capite thorace maiore quadrato, sat punctato, mandibulis (maris) elongatis, thorace quadrato, postice subangustato, subtiliter parce punctulato, lateribus rectis, linea laterali tenui, elytris obsolete striato-punctulatis, testaceis, basi apice margine suturaque nigris. Long. ·10.

A very singular species, of which I found but a single male at the Colorado River, in California. The head is quadrate, with parallel sides, and without impressions; the usual marginal line is distinct. The mandibles project beyond the labrum, and are about half as long as the head, the tip is emarginate. The labrum is broad and slightly emarginate; the antennæ are more than half as long as the body; the first joint is not much larger than the second, but the last three joints are distinctly larger than the preceding and subtriangular. The scutel is triangular. The under surface of the body is black, with the antennæ and feet piceous.

Species unknown to me.

13. L. longicornis Mann. Bull. Mosc. 1843, 303. Russian America.

DENDROPHAGUS Schönh.

1. D. glaber Lec. Agassiz' Lake Sup. 223. Lake Superior and Lake Huron, rare. From the punctures of the elytra proceed small hairs, which, however, are invisible, except with a very powerful lens.

2. D. Cygnæi Mann. Bull. Mosc. 1846, 15. Sitka; (unknown to me.)

BRONTES Fabr.

1. B. dubius Fabr. Syst. El. 2, 97. *Cucuius dubius* Fabr. Ent. Syst. emend. 2, 95. Oliv. Enc. Méth. 6, 242. Abundant in every part of the United States east of the Rocky Mountains. The mandibles of the male are armed with a very slender curved horn, which converges upwards to meet the one of the opposite side. The upper surface of the body is sometimes entirely black; sometimes the head, thorax and margin of the elytra are brown.

2. B. debilis, ater, depressus opacus, dense punctatus, thorace latitudine vix breviore, lateribus denticulatis, angulis anticis paulo productis, elytris subtilius punctato-substriatis, lateribus magis declivibus, antennis piceis, pedibus testaceis. Long. .17—.2.

Georgia, not rare. Differs from the preceding by the thorax being not distinctly transverse, less strongly toothed at the sides, with the anterior angles acute, but very slightly produced; by the stria of the elytra being less punctured, and by the sides being almost perpendicular. The sexual characters are as in the preceding.

3. B. truncatus Motschulsky, Bull. Mosc. 1845, 1, 92. Mann. Bull. Mosc. 1852, 364.

California (San Jose,) and Russian America (according to Motschulsky.) This species has the thorax formed almost as in the preceding, the anterior angles being a little more produced; the elytra are, however, deeply striate, with the interstices more rough with elevated punctures; they are also more strongly carinate towards the side. The sexual characters as in the preceding species, but in addition, the elytra of the male are longer, and obliquely slightly sinuated at the apex.

TELEPHANUS Er.

1. T. velox. *Heterodromia velox* Hald. Proc. Acad. Nat. Sc. 3, 127. *Psammachus* (*velox*) Hald. Proc. Acad. Nat. Sc. 3, 348. *Telephanus atricapillus* Er. Ins. Deutschl. 329.

Middle, Southern and Western States, under stones and pieces of wood. This species is named in Dr. Harris' collection, "*Orsodacna? pallida* Say," which name is quoted by Schaum (Bericht, &c., 1851) as having priority, but I have not been able to find any description of the insect among Say's publications.

SILVANUS Latr.

A. Thorax lateribus sexdentatis.

1. S. dentatus Say, Journ. Acad. Nat. Sc. 5, 265. Mann. Bull. Mosc. 1852, 303. *Lyctus dentatus* Fabr. Ent. Syst. emend. 1, 2, 503; Syst. El. 2, 561.

Found, but not abundantly, throughout the United States, usually in rice, sugar and other articles of commerce. According to Fabricius, it is found in South America, and according to Mannerheim in Russian America.

2. S. surinamensis Steph. Ill. Brit. Ent. Mandibulata, 3, 114.

For the synonyms of this common insect, see Erichson's Ins. Deutschl. 336. It is now diffused over the whole globe in articles of commerce. Erichson adopts, from Fabricius, the specific name frumentarius for it, but the oldest description is certainly that of Linnæus. Of the descriptions by the older authors, the chronological succession is as follows:

Dermestes surinamensis Linn. Syst. Nat. (ed. 12mo reform. 1767) 2, 565.
Tenebrio surinamensis De Geer Mém Ins. (1775) 5, 54, tab. 13, fig. 12.
Colydium frumentarium Fabr. Ent. Syst. 62, (1775) id. emend. 1, 2, 496.
Dermestes sexdentatus Fabr. Ent. Syst. emend. (1792) 1, 232.

B. Thorax lateribus haud dentatus.

a. Caput pone oculos denticulo armatum.

3. S. bidentatus, linearis, depressus, opacus ferrugineus, subpubescens, thorace confertim punctulato, elongato, postice angustato, angulis anticis spinosis, lateribus crenulatis, dorso obsolete bisulcato, elytris punctato-striatis; capite pone oculos denticulato. Long. ·12.

Erichson, Ins. Deutschl. 338.
Dermestes bidentatus Fabr. Syst. El. 1, 317.
Colydium sulcatum Fabr. Syst. El. 2, 555, (teste Erichson.)

A European species, which occurs in the Middle and Southern States. The sides of the thorax are very slightly sinuous.

4. S. planatus, linearis valde depressus, opacus, ferrugineus, subpubescens, thorace confertim punctato, elongato, pone medium sinuatim angustato, angulis anticis subspinosis, lateribus obsolete crenulatis, elytris confertim punctato-striatis; capite pone oculos denticulato. Long. ·12.

Germar, Ins. Nov. 466.
Silvanus Zimmermanni Guérin, Icon. Règne An. 198.

Southern States and Nebraska. The outline of the thorax is slightly concave before the middle, with the sides nearly parallel; behind the middle they converge, so that at the middle they form a very obsolete angle; the anterior angles are hardly prominent, and the posterior ones are obtuse, but not rounded.

5. S. cognatus, linearis valde depressus, subnitidus ferrugineus, subpubescens, thorace confertim punctato, obsoletius in disco, elongato, ab apice sensim angustato, lateribus crenulatis fere rectis, angulis anticis acutis parum productis, elytris punctato-striatis; capite pone oculos denticulato. Long. ·10.

Southern States; closely resembles the preceding, but the sides of the thorax are straight, and the anterior angles, though short, are more acute; the posterior angles are obtuse.

b. Caput pone oculos haud denticulatum.

6. S. imbellis, linearis, depressus, fere opacus, ferrugineus subpubescens,

thoracе confertim subtilius punctato, linea dorsali obsoleta lævi, elongato, ab apice angustato, lateribus parum rotundatis, angulis anticis acutis, non productis, elytris confertim punctato-striatis. Long. ·11.

Georgia. This species has the elongate form and brown color of those of the preceding division, but is easily distinguished by the absence of the little tooth behind the eye. The posterior angles of the thorax are obtuse.

7. S. nitidulus, linearis, valde depressus, testaceus, nitidus subpubescens, thorace parcius subtiliter punctulato, latitudine longiore, pone medium angustato, angulis anticis acutis, haud productis, elytris subtilius seriatim punctatis. Long. ·08.

Colorado River, California, under poplar bark. The sides of the thorax are almost parallel anteriorly, and subangulated at the middle; the anterior angles are scarcely prominent, and the posterior ones are obtuse. The disc is marked with two faint longitudinal impressions connected at the base. The elytra are not wider than the head, and the rows of punctures become obsolete towards the tip. The head is as broad as the thorax, flattened and finely but not densely punctulate.

8. S. opaculus, linearis, depressus, rufo-testaceus, opacus, pubescens, thorace latitudine non longiore, quadrato, angulis omnibus prominulis, lateribus crenulatis fere rectis, confertissime punctato, dorso obsolete bisulcato, elytris subtiliter dense punctato-striatis. Long. ·07.

Colorado River, California, under bark. From the next species it differs by its more elongate and depressed body, and the coarser punctuation of the head and thorax.

9. S. rectus, elongatus, subdepressus, testaceus, opacus, subpubescens, thorace latitudine subbreviore, quadrato, angulis omnibus rectis, lateribus rectis subcrenatis, confertim punctulato, elytris punctato-striatis. Long. ·07.

One specimen from Illinois, Mr. Willcox. The punctures of the head and thorax are very fine; the striæ of the elytra are more distant than in any of the preceding species. The specimen is not in very good condition, but I think that there can be no doubt of the propriety of referring it to this genus.

10. S. quadricollis, linearis, subdepressus, rufo-testaceus, nitidulus, subpubescens, thorace sat dense punctulato, linea dorsali sublævi, latitudine sublongiore, lateribus parallelis subsinuatis, angulis anticis rectis, posticis subobtusis, basi rotundata, elytris thorace non latioribus punctulatis, punctisque vix maioribus seriatis impressis. Long. ·11.

Guérin, Icon. Règne An. 198.

Georgia. My specimens are not in good condition, but present all the characters of this genus, except that in the only antenna now remaining the 10th and 11th joints appear closely united.

11. S. advena, elongatus, rufo-testaceus, subnitidus pubescens, thorace punctulato, transversim quadrato, lateribus paulo rotundatis, angulis anticis dilatatis, posticis rectis, basi sinuata, elytris subtiliter punctato-striatis; antennarum articulo 9no sequente minore. Long. ·06—·07.

Erichson, Ins. Deutsch. 339. Redtenbacher, Käfer Oesterr, 778.

Cryptophagus advena Waltl, Silberm. Rev. Ent. 2, 256.

Latridius musæorum Ziegler, Proc. Acad. Nat. Sc. 2, 270.

Abundant throughout the United States, in articles of commerce, herbaria, &c. This species, although placed by several entomologists in the present genus, has so much the form of Paramecosoma, that any person would be tempted to refer it to that genus. The first joint of the abdomen is not longer than the second, and therefore, according to Erichson's definition, it would be excluded from the family of Cryptophagides.

In this essay must be included the description of a remarkable insect, of which my unique specimen is in such a bad condition, that I am unable to determine whether it should be referred to any described genus, or even to indicate its position in the group; from its specific characters, I suspect a relation with Pedi-

acus, but the size of the eyes and the form of the thorax are very different. I retain for it the name which appears in Dejean's Catalogue.

Nemicelus marginipennis, linearis, valde elongatus et depressus, pallide testaceus nitidus, capite cum oculis magnis thorace latiore, hoc latitudine fere duplo longiore, lateribus antice rotundatis, postice subsinuatis, pone medium angustato, disco punctulato, fovea utrinque prope basin profunda impresso, elytris punctulatis vix striatis, margine laterali nigricante, apice truncatis. Long. ·20.

Georgia. The antennæ are longer than the head and thorax, with turbinate joints, gradually increasing in size; the first joint is thickened, and is longer than the two following united. The last joint of the maxillary palpi is larger than the penultimate and apparently acute at tip. The angles of the thorax are all rounded; the posterior foveæ are oblong, slightly oblique, and about as far from the sides as from the base.

Notice of some Coleopterous Insects, from the Collections of the Mexican Boundary Commission.

By John L. Le Conte, M. D.

This paper includes descriptions of some new species contained in collections received from the Boundary Commission immediately before the completion of the survey, and with the collections previously made by the active and enterprising naturalists attached to the expedition, will enable a moderately full Coleopterous Fauna of the lower Rio Grande to be prepared.

Of the species noted below, some were collected between Laredo and Ringgold barracks, by Messrs. Schott and Weise, under the command of Major Emory. Those from Frontera, Rio Grande, were collected by Mr. J. D. Clark, under Major Graham: a few others were obtained by Mr. Clark at San Antonio, in Texas. Some very interesting species from Fort Union, New Mexico, collected by Major Sibley, are also added, although not belonging properly to the Boundary fauna: and one from Dr. Cooper's collection in Oregon, which was omitted in my description of his species.

Cicindela punctulata and albohirta. Frontera; Mr. Clark.

Cicindela 16-punctata Klug. Jahrb. 32. Frontera; Mr. Clark. This species resembles very closely C. Hentzii, nor does there appear in Klug's description any character which would separate it from that species. The law of representative forms is abundantly exemplified in the species of this genus, and much careful investigation will be necessary to determine what are well defined limits of the species.

C. blanda? A species closely resembling this was also found by Mr. Clark at Frontera.

Pasimachus costifer, niger, nitidus; thoracis elytrisque marginibus cyanescentibus, illo postice angustato, lateribus postice sinuatis angulis posticis rectis, his modice convexis, lævibus, carina humerali postice obsolete continuata, costaque submarginali acuta utrinque paulo abbreviata ornatis: antennarum articulis 2 et 3 compressis. Long 1·05—1·2.

Dr. Weise, Laredo to Ringgold Barracks. This species has the same form as P. depressus and punctulatus, but the sharply elevated costa between the margin and the obsoletely prolonged humeral carina will readily distinguish it, The mandibles are slightly rugous.

Harpalus impiger, niger, nitidus, elongatus, thorace latitudine paulo breviore, paulo convexo, postice angustato, lateribus rotundatis, anguste marginatis, basi subemarginata punctulata, utrinque subimpressa, angulis posticis obtusis non rotundatis, elytris thorace vix latioribus, profunde striatis, unipunctatis, apice sinuatis, antennis palpis pedibusque ferrugineis. Long. ·52—·65.

Santa Fe, New Mexico, Mr. Fendler: Frontera, Mr. Clark. This species is comparatively almost as elongated as H. erraticus, but the thorax is more

narrowed posteriorly, the lateral margin is narrower, and the elytra of the female are not toothed near the apex: the posterior angles of the thorax are slightly prominent, and almost rectangular.

Phileurus cribrosus, ater, nitidus, convexus, clypeo marginato apice acute elevato, ante oculos transversim carinato, thorace transverso, parcius punctato, pone medium canaliculato, elytris punctis grossis seriatim positis. Long. ·52.

Laredo to Ringgold Barracks; Mr. Weise. This curious little species seems to have most affinity with those of Burmeister's division (δ (2));* the anterior tibiæ have three large external teeth, the mandibles are without any prominent external tooth, and the elytra without any short series of punctures near the scutellum. It differs, however, from all those described by Burmeister in having in place of the two usual frontal tubercles a transverse ridge, scarcely emarginate at the middle. The prosternal prominence is small, acute and densely pilose.

At Vallecitas, in California, I found the elytra and thorax of a species which seems on comparison very similar to the specimen found by Mr. Weise, but belongs to a section of the genus having a short stria at the base of the elytra, between the first and second stria: the punctures of the elytra are more closely set, so as to form striæ; the thorax is more densely punctured anteriorly, and almost smooth posteriorly: the dorsal channel extends almost to the apex, but is not deep, and finally the anterior tibiæ above the three long teeth have an indistinct prominence representing a fourth tooth. The length was about ·65 of an inch. The species may be called P. illatus.

Athyreus serratus, ferrugineus, nitidus, clypeo antice truncato elevato, vertice transversim elevato, thorace lateribus rotundatis serrulatis, antice valde declivi, et medio late impresso, carinis utrinque duabus obliquis munito, apice valde marginato, elytris tenuiter striato-punctatis, antennis flavis. Long. ·54.

One specimen, Laredo to Ringgold Barracks. The head is finely scabrous; the clypeus is truncate and perpendicular at the apex, which forms a subtriangular facet; each side above the eye commences an elevated line, which runs forward to the angle of the lateral emargination of the clypeus, then in a curve runs to the apex, where it unites with the elevated edge of the triangular facet above mentioned: the vertical horn is very short and transverse. The thorax is sparsely punctulate, with a few large punctures along the middle, and in the concavities: each side at the middle is a broad transverse sulcus, limited anteriorly by an elevated line; anterior to this the disc is very declivous, with the anterior margin strongly elevated; at the middle of this declivous face is a shallow impression, and again each side a deeper excavation, between which and the first mentioned elevated line is a strong somewhat oblique elevated ridge: the sides are regularly rounded and serrate, the anterior angles are acute. The striæ of the elytra are fine and moderately punctured; the interstices are very sparsely punctulate. The under surface and the legs are furnished with long yellow hairs.

Although this is the first authentic appearance of the genus Athyreus in our fauna, I find on comparison that Bolbocerus fossatus Hald. (Proc. Acad. 6, 362,) and Scarabæus ferrugineus Beauv. (Ins. 90, tab. 2b, fig. 3,) also belong here; the middle coxæ in both of those species are separated, and the mesosternum is somewhat elevated, acutely margined at the sides and declivous anteriorly. In his beautiful monograph of Athyreus, Klug suggests that the species of Beauvois just mentioned belongs to this genus, although in the absence of specimens for examination, this opinion could not be confirmed.

Anomala luteipennis, ovata nigra virescens, nitida, supra glabra, thorace lateribus rotundato, sat dense punctato, capite densius rugoso, postice punctato, elytris luteis, striis punctatis sutura epipleurisque anguste nigricantibus, pygidio parcius sat grosse punctato antennis testaceis. Long. ·47—52.

Laredo to Ringgold Barracks, Mr. Schott. One specimen has a small black

* Lamellicornia, 3, 151.

spot on each elytron on the first smooth interstice about the middle: the mesosternum is not prominent: the club of the antennæ in all the specimens is as long as the remaining portion. A nearly allied species from Wisconsin, given me by Mr. Guex, may be thus described.

A. marginella, ovata nigra virescens, nitida supra glabra, capite densius rugoso, postice punctato, thorace lateribus subangulato, punctato, elytris pallide testaceis, striis punctatis, sutura, margine, lineola humerali, guttaque utrinque dorsali ad medium nigris, pygidio confertim subtiliter rugoso, opaco, antennis testaceis, (lamella ♂ longiore). Long. ·4—·45.

Helichus æqualis, fuscus, æqualiter pubescens, subtiliter punctatus, thorace latitudine longiore, lateribus vix rotundatis, fere parallelis: elytris vix obsolete striatis. Long. ·18.

One specimen, Frontera (Rio Grande), Mr. Clark. This species differs from H. lithophilus, by the thorax being longer, and scarcely narrowed anteriorly, and by the fine punctures of thorax and elytra being very distinct: the striæ of the latter can hardly be traced. Its characters approach most closely to H. Gilensis *Lec.* (Pro. Acad. 6, 43), a species of a broader form, and with very distinct lines of punctures upon the elytra.

Cymatodera balteata, testacea, parce pilosa, capite thoraceque dense punctatis fusco-piceis, hoc latitudine fere duplo longiore, subcylindrico, postice subangustato antice transversim impresso, lateribus subsinuatis, elytris punctis quadratis magnis seriatis postice minoribus, interstitiis parce punctatis; gutta utrinque ad quadrantem, fascia lata pone medium, alteraque. angustissima subapicali nigro-piceis, antennis capite thoraceque vix longioribus fusco-testaceis. Long. ·41.

One specimen, Laredo to Ringgold Barracks, Mr. Schott. The general form and appearance is that of C. undulata, but the thorax is not constricted posteriorly and is less sinuate on the sides, and the punctures of the elytra are much larger.

Cymatodera cancellata, fusco-picea, parce pubescens, capite thoraceque dense punctulatis, hoc latitudine sesqui longiore, pone medium subito fere duplo angustiore, ante medium transversim impresso, lateribus antice parallelis, postice sinuatis, elytris punctis magnis quadratis seriatis postice vix minoribus, interstitiis angustis parce punctulatis, antennis capite thoraceque paulo longioribus, extrorsum paulo incrassatis, articulis turbinatis, ultimo longiore cylindrico. Long. ·38.

One specimen found with the preceding. Remarkable for the strange form of the antennæ, and for the sudden narrowing of the thorax behind the middle: there is however, no posterior transverse impression, except the constriction in the sides: the middle of the base is slightly elevated and marked with an oblong fovea. It is closely related to C. brunnea *Mels.*, but is smaller, with the thorax much more narrowed behind..

Elaphidion taeniatum, fusco-piceum, tenuiter fusco-pubescens, thorace latitudine vix breviore, lateribus rotundato, dense punctato, callis dorsalibus minus distinctis, punctoque laterali albo notato, elytris thorace paulo latioribus, antice grossius punctatis macula parva basali, alteraque transversa irregulari ad medium albo-pubescentibus, apice truncato, breviter bispinoso: antennis (♀) corpore brevioribus, articulis 3—6 apice breviter unispinosis. Long. ·95.

One specimen, Mr. Schott. In form resembles E. atomarium, but is not quite so robust: the thorax is scabrous with large punctures, the dorsal callosities are, as usual, three in number, one medial elongated, the others each side in front of the middle. The head around and between the eyes is densely pubescent with whitish hair: the elytra are moderately shining, the punctures are not very dense and become very small towards the apex. The thighs are not armed.

Elaphidion tenue, nigro-piceum, valde elongatum, lineare, æqualiter longius cinereo pilosum, thorace subcylindrico, latitudine fere sesqui longiore, lateribus parum rotundato, sat dense punctato, callo elongato dorsali notato, elytris punc-

tatis, punctis postice subtilioribus, apice emarginatis at vix armatis, antennarum articulo 3io spina longissima armato. Long. ·56—.65.

Laredo to Ringgold Barracks, Mr. Schott. Remarkable for its very slender form, in which it almost equals E. unicolor, (*Stenoc. unicolor* Randall): the fourth joint of the antennæ is armed with a very minute spine: the following joints are unarmed, as are the femora: the spine of the third joint extends two-thirds the length of the fourth joint. The elytra are truncate at tip, but the truncate part is slightly emarginate, in such manner that the angles become a little prominent. The antennæ of the male are longer, those of the female shorter than the body.

Oncideres p u s t u l a t u s, niger, pube brevi fusca dense vestitus, thorace brevissimo, spina laterali acuta armato, lineaque transversa subundulata denudata ornato, elytris guttis sparsis denudatis nitidis, versus humeros tuberculiformibus ornatis. Long. ·75.

Laredo, Mr. Schott. The anterior spots of the elytra are elevated, those behind the middle are flat.

Aedilis s p e c t a b i l i s, niger, subtiliter dense cinereo-fuscoque pubescens, thorace fusco maculis albis confluentibus utrinque ornatis, elytris basi fasciisque tribus undulatis obliquis fuscis (intermedia latiore), pedibus fusco annulatis, antennis longissimis cinereis, articulis 1—5 apice fuscis, 5to fasciculo apicali interno recurvato ornato. Long. ·91.

Fort Union, Major Sibley. The first five joints of the antennæ are densely clothed beneath with fine short erect hair: the apex of the fourth joint is hardly thickened, but at the apex of the fifth joint is an internal brush of long yellowish hairs, which are recurved, so as to form a hooked prominence. The form of the thorax in this species is quite different from A. nodosus, and is more similar to Monohammus, the spine being perpendicular, and the disc more cylindrical: it ought probably to form a new genus, but as the arrangement of the genera of Longicorns is still very unsatisfactory, it is needless for the present to separate species that are obviously allied.

ULOCHŒTES Lec. (Cerambyci Lepturidæ.)

Caput deflexum, fronte quadrata, perpendiculari, pone oculos subito, at parum constrictum: oculi emarginati; antennæ inter oculos pone medium insertæ; palpi breves articulis turbinatis subæqualibus; antennæ corpore duplo breviores, articulis 3 et 4 coniunctis 4to æqualibus: thorax transversus lateribus et dorso acute tuberculatus, densissime pilosus; elytra abbreviata, scabra, apice subacute rotundata, humeris valde elevatis. Tarsi posteriores articulo 1mo sequentibus coniunctis æqnali. Alæ abdomine longiores, rectæ.

1. U. l e o n i n u s, niger, capite griseo-pubescente, thorace antrorsum angustato densissime longe griseo-piloso, antice valde transversim impresso, postice paulo constricto, elytris opacis apice late testaceis, tibiis testaceis, apice nigris; antennis basi obscure testaceis, alis fuliginosis. Long. ·96; lat. ·35.

Prairie Paso, Oregon, Dr. Cooper. This very fine insect seems allied to Necydalis; it differs, however, by its less constricted neck, and by the proportions of the joints of the antennæ, also by its stouter form: the elytra diverge more posteriorly, showing a tendency towards a subulate form. The scutel is smooth and shining, with the sides hairy: the pectus is thinly clothed with grayish hairs.

Mallodon s e r r u l a t u s, piceo-niger, nitidus capite antice parcius, pone oculos densius punctato, genis subacutis, thorace transverso, lateribus scabro et inæquali disco subtilius parce punctato, antrorsum subangustato, lateribus rectis serrulatis, versus angulos posticos paulo reflexis, elytris disperse subtilius punctatis. Long. 2·3.

Laredo to Ringgold Barracks, Mr. Weise. Resembles closely M. c i l i p e s Hald., but the sides of the thorax are less serrate, and less reflexed: the disc is also less convex, the mandibles are not elongated, but thick, and emarginate at the end; those of the male of M. cilipes are similar in form.

Buprestis sphenicus, nigro-æneus, elongatus convexus breuissime parce pubescens, capite thoraceque punctis inauratis, hoc latitudine sesqui breviore, antice paulo angustato lateribus late rotundatis, basi media late rotundata utrinque sinuata, angulis posticis acutis, elytris a basi angustatis postice subacutis et serrulatis, subtiliter striato-punctatis, interstitiis parce punctatis, basi flavo pilosis, abdomine lateribus maculis triangularibus flavo-pilosis ornato. Long. ·75—1·0.

Laredo to Ringgold Barracks. Mr. Schott. The arrangement of Buprestidæ is at present in such confusion, that I am unable, by the books, to determine the proper reference of this species. Generic characters of much importance in this family have been lost sight of in the arrangements proposed, and a thorough revision is necessary. This particular species has for generic characters: elypeus broadly but regularly emarginate; the antennæ inserted under a strongly elevated line which runs obliquely towards the emargination of the clypeus; the labrum emarginate; the mentum rounded anteriorly; the scutel small, transverse and rounded: coxal plates much but gradually dilated internally: mesosternum divided, with the portions entirely connate with the metasternum: palpi almost cylindrical, with subequal joints: anus very slightly emarginate: tarsi with the joints 1—4 broadly lobed, the lobe of the fourth joint rounded: the basal joint of the posterior tarsi very little longer than the second: the mandible are thick, short and obtuse.

Buprestis ambiens, læte viridis, ænescens, elongatus minus convexus, capite valde ruguloso et punctato, oculis mediocribus, thorace latitudine breviore punctato lateribus rotundatis, flavo-marginatis, basi fere recte truncata, fovea ad medium alteraque utrinque ad angulos notata, elytris basi coniunctim subemarginatis, humeris acutis, lateribus flavo-marginatis, parallelis a dodrante angustatis, apice truncatis, aut profunde striato-punctatis, interstitiis paulo convexis, parce punctulatis. Long. ·68.

Frontera (Rio Grande), Mr. Clarke. Although having very much the form of Anthaxia, this species differs considerably in its generic characters; the antennæ palpi and feet are unfortunately wanting, but the following marks will enable the genus to be recognized:

The antennæ are near the eyes, (which are moderate in size) and are inserted on the front: behind the insertion is a deep fovea, at the bottom of which is a round shining tubercle* (as in Diceræa); the clypeus is very broadly emarginate in the arc of a circle, (labrum wanting); the mandibles are short, thick and obliquely truncate; the mentum is broad and rounded anteriorly; the mesosternum firmly connate with the metasternum; the posterior coxal plates with the posterior outline concave so as to form an internal tooth; anus not emarginate; scutel very small, subtriangular.

The yellow margin of the thorax is posteriorly separated from the disc by an impressed line: the yellow of the elytra is slightly dilated behind the humerus and again about the middle.

Phænops mirandus, niger, ænescens subtiliter dense punctulatus, capite guttis 3 politis, circulo positis, thorace guttis 4 anticis (intermediis maioribus) alteraque utrinque pone medium, lineaque dorsali postica nitidis lævigatis; elytris margine basique tenuiter rubris, lineisque flavis decussatis ornatis. Long. ·66.

Fort Union, New Mexico, Major Sibley. This beautiful species is nearly of the same form as our common black P. longipes, but is less acute posteriorly: the yellow lines of the elytra are arranged so as to include the following spots: a large common triangular one at the scutel, separated from the base by the red margin; an elongated lateral spot extending from behind the humerus to two-fifths the length: a large common rhomboidal spot on the suture, extending from the second to the fourth fifth of the length: immediately opposite the external angle of the rhomboid, a small submarginal black dot; finally a large apical blotch; separated from the rhomboid by a narrow yellow line, and from the margin by the red marginal line above mentioned. The yellow stripes which bound the anterior faces of the rhomboid are considerably broader than the

* Is this an ocellus, or a tympanum?

others. The under surface is of a uniform black bronze color, and densely punctured.

Eusattus puberulus, inflatus niger, subopacus, parce breviter flavo-pubescens, elytris parcius punctatis, lineisque elevatis duabus obsoletis notatis; thoracis angulis posticis acutis modice productis, tibiis anticis extus usque ad medium serrulatis, apice valde productis. Long. ·34.

Laredo to Ringgold Barracks, Mr. Weise. The sides of the thorax are strongly margined, and furnished with long hairs: the base and apex are ciliate as usual with short bristles: the disc is entirely without punctures: the slightly elevated lines of the elytra in one specimen can hardly be observed.

Asbolus? infaustus, parum convexus, niger, subnitidus, capite parce punctato, thorace latitudine sesqui breviore, lateribus rotundatis, postice breviter sinuatis, angulis anticis acutis, posticis rectis, basi truncata, parce in disco obsolete punctato, elytris ovalibus thorace paulo latioribus, postice valde declivibus, disco punctis, lateribus apiceque tuberculis subelevatis subseriatis notatis. Long. ·83.

One specimen, Laredo to Ringgold Barracks, Mr. Weise. This species agrees in its characters very closely with the two California species described in the Annals of the Lyceum of New York, (5, 129) the mentum is however more flattened, slightly carinate at base, and impressed anteriorly; the antennæ are less slender, and the joints are more distant, and the last joint is not truncate, but oval and pointed, and but little smaller than the tenth joint. A close affinity to Centrioptera is also seen, but that genus has less produced prosternum, and the mentum is not emarginate.

Allecula socia, picea fusco-pubescens, thorace latitudine duplo breviore, parce punctato, antrorsum angustato, lateribus rotundato, angulis posticis fere rectis, elytris profunde striato-punctatis, interstitiis subconvexis, punctatis. Long. ·45.

Laredo to Ringgold Barracks, Mr. Schott. Closely related to A. punctulata *Mels.*, but with a broader thorax: as in that species the eyes are large and moderately distant, the third joint of the antennæ equal to the fourth, and the penultimate joint of all the tarsi lobed.

Meloe sublaevis, cyaneo-niger, fere opacus, capite thoraceque parce subtiliter punctulatis, hoc quadrato, postice subangustato, angulis omnibus rotundatis, disco subdepresso, foveis duabus ante medium impresso, elytris subtiliter dædaleo-rugosis, antennis sensim paulo incrassatis. Long. ·65.

Fort Union, New Mexico, Major Sibley. Probably a female: the antennæ are not filiform as in M. angusticollis *Say*, nor thicker in the middle as in M. impressus *Kirby*, but are very gradually thickened to the end: the third joint is not longer than the fourth, and is about twice the size of the second. The inner spur of the posterior tibiæ is acute, the outer one is larger, concave and obtuse. This species approaches the Western American M. strigulosus *Mann.*, but the thorax is not so much elongated, the sides are nearly straight, and the base less emarginate.

Lytta costata, valde elongata, nigra, dense cinereo-pubescens, capite linea nigra impressa, thorace latitudine sesqui longiore, antrorsum angustato, lateribus late rotundato, linea nigra dorsali impressa, elytris sutura margine, costisque 4 elevatis ornatis, externa antice paulo abbreviatis, tarsis antennisque nigris. Long. ·65.

One specimen, Frontera, (Rio Grande) Mr. Clark. The antennæ are slender and filiform: the first joint is equal in length to the third; the second is about one half as long; from the third the joints diminish gradually in length: the inner spur of the posterior tibiæ is acute, the outer one is broader, obtuse and concave. The labrum is slightly emarginate. It belongs in division (B—g.) of Proc. Acad. 6, 331.

Lytta luteicornis, nigra dense cinereo-pubescens, thorace latitudine longiore lateribus antice rotundatis, disco lineolis duabus nigris sæpius ornato,

lateribus fere parallelis, elytris thorace fere duplo latioribus; tibiis apice tarsisque nigris, palpis, labro, clypeo, antennisque luteo-testaceis, his extrorsum obscuris. Long. ·85—·95.

Laredo to Ringgold Barracks, Mr. Weise. In the male, the first joint of the antennæ is as long as the head, compressed, and angulated externally beyond the middle but very slightly curved: the second joint is one half larger than the third. In the female the first joint extends to the posterior margin of the eye, and the second joint is about equal to the third. This species is allied to L. longicollis Lec. but the color of the cephalic organs, and the sexual characters distinguish it at first sight.

Zonitis rufa, pallide rufa, breviter pubescens, capite modice, thorace parcius punctato, hoc latitudine fere longiore, nitido subcanaliculato, lateribus antice rotundatis, elytris dense rugose punctatis, pedibus ore antennisque nigris. Long. ·27.

One specimen, Frontera, (Rio Grande) Mr. Clark. This species has very much the appearance of a small Nemognatha, but the maxillæ are not elongated: the spurs of the posterior tibiæ are broad, the outer one obtuse, the inner one subacute. The second joint of the antennæ is two-thirds as large as the third.

Tanymecus lautus, niger, parcius cinereo-squamulosus, capite punctato canaliculato, thorace latitudine sesqui breviore, lateribus parallelis apice rotundatis, parcius grosse punctato, disco subcanaliculato, postice fovea lata excavato, elytris thorace latioribus humeris obtuse angulatis, apice valde declivi, punctis seriatis maiusculis impressis, interstitiis alutaceis. Long. ·46.

One specimen, Frontera, (Rio Grande) Mr. Clark. The largest species I have seen within our Territories.

Notice of a new species of Salmonidæ, from the north-eastern part of the United States.

By Charles Girard.

The body of the male is subfusiform and rather slender, particularly the caudal region; the head being regularly subconical and contained five times in the total length. The maxillaries are gently curved, extending backwards to about the posterior margin of the orbit. The female is stouter, with the peduncle of the tail shorter; the head has the same general shape, but is not contained five times in the total length. The maxillaries are less curved, but extend as far backwards as in the male. The eye is very large; its diameter being contained nearly five times in the length of side of head. The caudal is deeply emarginated posteriorly, giving to it a more forked appearance than in either *Salmo oquassa* or *Salmo schago*. The adipose fin, in the male, is situated opposite the anterior margin of the anal, whilst in the female it corresponds to the posterior margin of the same fin.

The scales are well developed, being somewhat smaller, however, than in *Salmo schago*, and considerably larger than in either *Salmo oquassa* or *Salmo erythrogaster*. On the dorsal and ventral regions they are considerably smaller than upon the sides and along the peduncle of the tail. They extend, diminishing in size, over nearly the half of the length of the middle rays of the caudal fin. The lateral line takes an almost straight course along the middle region of the flanks. The following is an approximate formula of the rays of the fins:

D 2. 12. A 1. 9. C 8. I. 8. 9. I. 5. V 1. 9. P 14.

There are two anterior rudimentary rays to the dorsal, one or two to the anal, one to the ventrals, eight or ten to the upper lobe of the caudal, and five or six to the inferior lobe.

The upper surface of head and dorsal region are blackish brown; the sides are silvery white, and the belly yellowish. The region above the lateral line is densely spread all over with black irregular spots, some of which are confluent; a few scattered ones may be seen beneath that line upon the middle of the abdomen. Four to six of these spots, well defined, are always observed on the oper-

culum, one of which may occasionally reach the preoperculum. A few reddish orange dots, individually situated in the middle of a black spot, are occasionally observed along the middle and upper part of the flanks. Whether these dots are peculiar to the female or proper to both sexes, I am not prepared to say, from want of sufficient information, upon that point.

This species was first brought to my notice by M. Townend Glover, of Fishkill Landing, Dutchess Co., New York, who caught it in the upper affluent of Union river, in the State of Maine, during the middle of September. I propose for it the name of *Salmo gloverii*, as a token of gratitude towards an artist whose labors, if promoted, would contribute so much to popularize natural history, and spread its benefits throughout the country.

A list of the North American Bufonids, with Diagnoses of New Species.[*]

By CHARLES GIRARD.

1. BUFO AMERICANUS, Le Conte MS. HOLBR. N. Amer. Herp. v. 1842, 17, pl. iv.

Inhabits the Atlantic States, from Maine to Virginia, extending through the mountainous regions of the Carolinas into the valley of the Mississippi. It is likewise found in the North Western States and Canada.

2. BUFO LENTIGINOSUS, Holbr. N. Amer. Herp v. 1842, 7, pl. i.—*Rana lentiginosa*, SHAW, Gen. Zool. iii. 1, 1803. 173. Pl. liii.—*Bufo erythronotus*, HOLBR. Ibid. 11. Pl. ii.

Ranges along the sea coast, from South Carolina to Florida, and following the gulf through Alabama and Mississippi. Scattered individuals are met with across the mountains to South Carolina.

Bufo erythronotus does not appear to us different from *B. lentiginosus*, since color alone cannot be taken as an exclusive guide amongst the bufonids.

3. BUFO WOODHOUSII, Girard.—*Bufo dorsalis*, HALLOW. (non Spix). Proc. Acad. Nat. Sc. Philada. vi. 1852, 181; and in *Sitgreaves* Exped. Zuni and Color. Rivers, 1853, 142. Pl. xix. Head short and thick; upper central surface but little depressed, not to say grooved; the suborbital ridge being slightly elevated. The occipito-temporal ridge is thicker, and hence a little more conspicuous. Snout rounded, nostrils terminal. Mouth wide, upper jaw emarginated. Tympanum and parotids of moderate size. Limbs rather short and stout. First finger much longer than the second. A large metacarpal disk. Toes semipalmated. Two metatarsal tubercles, a very large and a very small one. No membranous fold at the inner lower edge of the tarsus. Papillæ of medium size upon the back. Inferior surface, with rather small and crowded granular warts. Above dark brown, with numerous lines of yellow. A dorsal yellowish vitta running the whole length of the body. Transverse blotches of black upon the thighs and fore arms. Beneath ochraceus.

The affinities of this species are intermediate between *B. americanus* and *B. lentiginosus*. Its geographic range appears to be New Mexico, having so far been found in the province of Sonora, and in the San Francisco mountains.

4. BUFO COGNATUS, Say, in *Long's* Exped. to Rocky Mts. ii, 1823, 190.—HOLBR. N. Amer. Herp. v. 1842, 21. Pl. v.—B. and G. in *Marcy's* Expl. Red Riv. La. 1853. 242. Zool. Pl. xi.

A very characteristic species in the structure of the upper surface of head. Found in the territory of Nebraska, and southwards as far as the province of Coahuila, Mex.

5. BUFO SPECIOSUS, Girard.—Head moderate; its upper surface smooth and even, or with slight traces of ridges or carinæ. Snout subtruncated and rounded; nostrils subterminal. Mouth large, upper jaw slightly emarginated. Tongue

[*] Specimens upon which these descriptions are based, are preserved in the museum of the Smithsonian Institution, at Washington.

small, elongate, posteriorly free for the fourth of its length. A subgular vocal bladder. Tympanum of medium size. Parotids subovoid, of stoutish appearance. Limbs of moderate development. First finger much longer than the second, which is equal to the fourth. A large subcircular metacarpal disk. Toes semipalmated. Two metatarsal spade-shaped processes, the innermost being much the largest. A membranous fold at the inner lower margin of tarsus. Skin above covered with papillæ of moderate development, and with small warts beneath. Color above greenish brown, maculated: no dorsal lighter vitta. Beneath, greenish or yellowish white, unicolor.

Allied to *B. woodhousii*, differing, however, in the form and development of the metatarsal processes. It appears to inhabit the valley of the Rio Bravo (Rio Grand del Norte), and to be not uncommon in the province of New Leon.

6. Bufo punctatus, B. and G. Acad. Nat. Sc. Philad. vi. 1852, 173.

A very marked species in the shape and structure of the head. Hitherto found in the valley of the Devil's river (Rio San Pedro, of Rio Grande), and in the province of Coahuila, Mex.

7. Bufo debilis, Girard.—Upper surface of head without any crest or ridge. Snout rounded. Mouth moderate. Upper jaw emarginated. Tongue small. Tympanum small. Parotids moderate and elongated. Limbs of moderate development, femur shorter than tibia. First finger longer than the second. A large metacarpal disk. Toes slightly united at base by a web. Two metatarsal processes. No membranous fold at the inner lower margin of the tarsus. Skin above pustulous; pustules of moderate development; warts beneath very small. Color above brownish yellow, spotted. No dorsal lighter vitta. Beneath of a uniform soiled yellow.

Allied to *B. speciosus*; found in the lower part of the valley of the Rio Bravo (Rio Grande del Norte), and in the province of Tamaulipas.

8. Bufo nebuliper, Girard.—*Bufo granulosus*, B. and G. (non Spix). Proc. Acad. Nat. Sc. Philad. vi. 1852, 173.

This species is strongly suggestive of *B. marinus*, Schn. (*B. agua Daud*); it is, however, easily distinguished from it upon a comparison of individuals of both species. It inhabits Texas, the valley of the Rio Bravo (Rio Grande del Norte), the provinces of Tamaulipas and New Leon, Mexico.

9. Bufo columbiensis, B. and G. Proc. Acad. Nat. Sc. Philad. vi. 1853, 376.

This is possibly the largest species of North American toads; it is common in the valley of the Columbia River, Oregon Territory, where it was first observed by the naturalists of the U. S. Exploring Expedition under Capt. C. Wilkes.

10. Bufo boreas, B. and G. Proc. Acad. Nat. Philad. vi. 1852, 311.

So far the most northern bufonid; it is not uncommon about Puget Sound, where it was collected many years ago by the naturalists of the U. S. Exploring Expedition.

11. Bufo halophila, B. and G. Proc. Acad. Nat. Sc. Philada. vi. 1853, 311.

Since this species was first described an adult individual has been secured, which has enabled me to give the following diagnosis:

Upper surface of head without either crests or grooves. Skin thick and adhering to skull. Snout rounded. Parotids of medium size. Eyes moderate. Tympanum small. Tongue lanceolated, broadest posteriorly. Upper jaw emarginated. Inner finger longer than the second. Two metacarpal disks. A membranous fold along the tarsus. Toes semipalmated; two metatarsal tubercles. A narrow yellowish dorsal vitta. Ground color greenish yellow, with numerous black spots and dots, distributed all over the upper parts and sides of body, head and limbs. Beneath unicolor of a dingy yellow.

Inhabits the western coast, frequenting the sea margin; hitherto observed only in California.

12. BUFO QUERCINUS, Holbr. N. Amer. Herp. v. 1842, 13. Pl. iii.
This quite small species appears to be restricted to very narrow geographical limits, having so far been found only in the neighborhood of Charleston, S. C.

13. BUFO INSIDIOR, Girard.—Upper surface of head plane and smooth. Snout subacute, protruding. Mouth moderate, upper jaw slightly emarginated. Tongue elongated, tapering towards both ends. Tympanum inconspicuous. Parotids large and elongated, situated obliquely upon the shoulder. Limbs moderate. First finger equal to the second in length. A metacarpal disk, and a tubercle. Toes slightly webbed at base. Two metatarsal tubercles. Skin papillous above, warty beneath. Above of a bluish slate hue, with black markings. Beneath unicolor, dingy yellow.
Small specimens, perhaps immature, were collected in Chihuahua by Dr. Thos. H. Webb, attached to Comm. Bartlett's party in the survey of the U. S. and Mex. boundary line.

14. ENGYSTOMA CAROLINENSE, Holbr. N. Amer. Herp. First ed. i. 1836, 83. Pl. xi., and 2d ed. v. 1842, 23. Pl. vi.—DUM. and B. Erp. gen. viii., 1841, 743.
Found in South Carolina, Georgia, Florida, Louisiana and Mississippi.

15. ENGYSTOMA RUGOSUM, Dum. and B. Erp. gen. viii., 1841, 744.
Said to occur in the same regions as the preceding species. Have never observed it, and therefore cannot endorse it as a North American species.

The following amendments to the By-Laws were adopted:

Chapter viii., *Art.* 1. No specimen of Natural History contained in the collections of the Academy shall be loaned from the Hall, under any pretence, or for any purpose whatever.

Chapter xii., *Art.* 2. Every proposition to alter or amend these By-laws shall be submitted, in writing, at a meeting for business, and if adopted by the affirmative votes of two thirds of the members present, it shall be read at the meeting for business next succeeding; and then, if adopted by the affirmative votes of two-thirds of the members present, it shall be again read at the next succeeding meeting for business, and on receiving the affirmative votes of two-thirds of the members present, it shall become a part of these By-Laws; *Provided*, that at least twelve members be present at each of the three readings.

The following Article was added to Chap. XII:

Chapter xii., *Art.* 3. No one, or more, of the By-Laws of this Academy shall be suspended.

ELECTION.

Dr. William S. M'Ilhenny and Job R. Tyson, Esq., of Philadelphia, were elected *Members*.

June 6th.

Vice-President LEA in the Chair.

Letters were read—

From the Royal Saxon Society of Sciences, dated Leipzig, 27th Feb., 1854;

From the Royal Academy of Sciences of Vienna, dated Jan. 18 and Jan. 28th, 1854:

From the Furstlich Jablonowskischen Gesellschaft zu Leipzig, dated 13th Jan., 1854; and from the Belfast Natural History Society, dated 31st Dec., 1853; severally transmitting donations to the Library announced this evening.

From the Librarian of the Pennsylvania State Library, dated Harrisburg, June 1, 1854;

From the Trustees of the New York State Library, dated Albany, May 26th, 1854; and

From the American Philosophical Society, dated August 20, 1854, severally acknowledging the receipt of recent publications of the Academy.

From Dr. M. H. Houston, dated Wheeling, Va., May 22d, 1854, presenting the Indian remains deposited in the Cabinet by Mr. Ellet, through Dr. C. D. Meigs, May 16th, 1854.

Dr. Hallowell presented for publication in the Proceedings, two papers, entitled respectively, "Descriptions of New Reptiles from California;" and "On a genus and species of Serpent from Honduras, presumed to be new," both of which were referred to Dr. Leidy, Dr. Le Conte, and Col. McCall.

Dr. Leidy stated that while examining some fossils he had accidentally inspected the fragment of lower jaw, supposed by Harlan to belong to an extinct species of hog, the *Sus americanus*; and which Prof. Owen, after an examination, had considered as a new genus, *Harlanus*, allied to the tapiroid pachyderms, when it immediately occurred to him that it belonged neither to a suiline nor a tapiroid animal, but to a true ruminant, and this, the *Bison latifrons*.

The form of the fragment of jaw is the same as the corresponding portion in the ox, and its robustness is in relation to the size and strength of the head of *Bison latifrons*.

The fossil belonged to a very old individual, as indicated by the production of large fangs to the teeth, and the almost entire removal of the enamelled crown by trituration.

The first of the series of true molars in the specimen exhibits two fangs of dentine united by an isthmus of cementum, (see plate vi. accompanying Owen's memoir, in vol. i. new series, of the Journal of this Academy.)

In the second true molar a line of enamel yet borders the crown. The little prominence in the centre of the dentinal space of the anterior lobe is the remnant of the crescentic enamel island. The middle of the three folds on the outer side, which misled Prof. Owen to suspect an affinity of the animal to Toxodon, is nothing more than the remains of the robust accessory column of the molars of *Bison latifrons*, as may be seen by comparing the specimens, or the figures in Owen's plate, with the corresponding part in the figures 6 and 7 of the last molar in plate ii. of my "Memoir on the Extinct Species of American Ox."

The last molar of *Bison latifrons*, indicated in the figures just mentioned, not only exactly fits the corresponding space in the fragment of jaw, but the remaining portion of tooth in the latter is of the same form and size as the corresponding portion of the entire tooth.

If these views be considered as correct, then the *Sus americanus*, or *Harlanus americanus*, ceases to be a distinct animal, and the fossil in question becomes a portion of *Bison latifrons*.

In further confirmation of these facts, a portion of a humerus and a tibia, mentioned in Prof. Owen's paper, and an atlas and a metacarpal bone were discovered by Mr. Couper, with the fragment of jaw, and these had previously been referred to *Bison latifrons* in my memoir above referred to.

Dr. Leidy next called attention to several fossils indicating new species of extinct mammalia.

The first was the crown of a molar tooth discovered by Captain Bowman, U. S. A., in the sands of Ashley river, S. C. It most resembles the left lower penultimate molar of the bear, but the triturating surface is more generally level, and presents less disposition to the formation of cusps. The specimen measures 24 m.m. antero-posteriorly, and 17 m.m. transversely. For the genus and species supposed to be indicated by the specimen the name of *Arctodus pristinus* was proposed.

The other fossils consisted of two specimens loaned by Prof. Hall, of Albany, and constitute part of the collection made by Messrs. Meek and Hayden, during an expedition to Nebraska Territory in the summer of 1853. They were found on Bijou Hill, east of the Missouri River, in a tertiary formation surmounting cretaceous beds.

One of the specimens is an inferior molar of a solipedal animal, apparently intermediate to *Equus* and *Anchitherium*, the enamel folding upon the triturating surface being less complex than in the former, and greater than in the latter. It appears to have had an envelope of crusta petrosa as in the horse, though nearly all removed in the specimen. In size it is relatively long compared to the corresponding teeth of *Anchitherium*, but is short compared to those of *Equus*. Its antero-posterior measurement in 17 m.m. For the genus and species the name of *Hippodon speciosus* was proposed.

The remaining specimen is the fragment of a lower jaw, containing a last premolar and the first true molar of a small ruminant allied to the Musks. The last premolar on the triturating surface presents a series of five folds projecting inwardly. Its measurement antero-posteriorly is 8 m.m. The inner side of the true molar is nearly as plain as in those of *Palæotherium*. Its measurement antero-posteriorly is also 8 m.m. For the genus and species the name of *Meryccodus necatus* was proposed.

June 13th.

Dr. RUSCHENBERGER in the Chair.

A letter was read from Dr. W. P. Gibbons, dated San Francisco, May 16, 1854, transmitting the specimens of viviparous fishes acknowledged this evening; also a paper intended for publication in the Proceedings, entitled, "Descriptions of four new species of Viviparous Fishes from Sacramento River and the Bay of San Francisco. Read before the California Academy of Natural Sciences, May 15th, 1854, by Wm. P. Gibbons, M. D."

Referred to Dr. Le Conte, Dr. Leidy, and Dr. Hallowell.

Dr. Hallowell presented a paper for publication in the Proceedings, entitled, "Remarks on the Geographical distribution of Reptiles, with descriptions of several species supposed to be new, and corrections of former papers;" which was referred to Dr. Leidy, Dr. Da Costa, and Dr. Le Conte.

Dr. Da Costa directed the attention of the Academy to a new process which he had lately employed in making minute injections. In order to insure a greater rotundity and distinctness of the vessels than is usually obtained, he performed a series of experiments with solid substances dissolved in ether, and as evidence of the results he submitted several specimens to the inspection of the members. The substances selected on account of their ready solubility were the resins, and of these the sandarach and the Damarra copal were found to answer best. One ounce of the resin was dissolved in about three ounces, or if mucous membranes were to be injected, in about four ounces of ether. This was then filtered, and enough finely ground yellow or red paint added to give to the injecting mass the

equisite color. Judging from the equal distinctness of the vessels in some of Prof. Hyrtl's preparations in his possession, he was led to believe that it is on a similar principle that these beautiful injections are made, except that turpentine is probably used as a solvent instead of ether. He was, however, not able to speak positively on this subject, since the injecting material used by Prof. Hyrtl has never been disclosed. The advantage of using ether for injections, as first directed by Dr. Goddard, instead of turpentine, is that preparations in which ether has been used are always more uniformly and more minutely injected; and by dissolving solid substances in it, Dr. Da Costa believed that equal distinctness, with perhaps greater minuteness than is even afforded in the preparations of Prof. Hyrtl, may be obtained.

June 20th.

MAJOR LE CONTE in the Chair.

Dr. Le Conte presented two papers for publication in the Proceedings, viz: "Synopsis of the Dermestidæ of the United States," and "Synopsis of the Byrrhidæ of North America," both of which were referred to Dr. Leidy, Dr. Elwyn, and Dr. Ruschenberger.

Dr. Leidy presented a paper for publication in the Journal, entitled, "Descriptions of New Fossil species from the cretaceous formation of Cage Creek, Nebraska, by John Evans, M. D., and B. F. Shumard, M. D.;" which was referred to Mr. Conrad, Mr. Charles E. Smith, and Mr. Foulke.

Mr. Cassin presented a paper for publication in the Proceedings, entitled, "Descriptions of new Birds collected between Albuquerque, New Mexico, and San Francisco, California. By S. F. Baird." Referred to Mr. Cassin, Dr. Heermann, and Col. McCall.

June 27th.

Vice President LEA in the Chair.

The Committees to which were referred papers by Dr. Hallowell, read June 6th and 13th, 1854; by Dr. Gibbons, June 13th; by Dr. J. Le Conte, read June 20th; and by Prof. Baird, read June 20th, severally reported in favor of publication in the Proceedings.

Descriptions of new Reptiles from California.

BY EDWARD HALLOWELL, M. D.

CHELONIANS.

EMYS NIGRA, *nob.*

Sp. Char.—Shell oblong-ovate, slightly compressed at the sides and emarginate, but not distinctly serrated posteriorly; latero-posterior margins of carapax everted; nuchal plate narrow, truncate anteriorly, broader posteriorly; 24 marginal plates, the two posterior more or less quadrilateral, the two adjoining pentagonal; color blackish above, the upper part of head and neck presenting numerous very small yellow spots upon a black ground; anterior extremities with a tinge of yellow; under jaw and throat yellow, with dark colored margins; plastron yellow in the middle, with large b
the sides, and anteriorly and posteriorly;
blackish; tail of moderate length.

Dimensions.—Length of head 1 inch; breadth ⅓; length of carapax 6½ inches, measured along curvature superiorly; breadth at middle 5½ inches; of tail 2½.

Habitat.—Posa Creek, Lower California, where it occurs in great numbers.

Gen. obs.—This species resembles none of the North American Emydes with which I am acquainted. Its dark color puts one in mind of, but is not so jet a black as that of Sternothærus niger of Madagascar.

SAURIANS.

DIPSO-SAURUS, *Hallowell.*

Gen. char.—Head triangular, covered above and in front with tubercles; nostrils latero-superior, opening in a single scale; rostral plate vertical, triangular; jaws margined each with a series of smooth quadrilateral plates; tympanum visible, depressed; upper part of body covered with carinated scales, more or less rounded posteriorly, arranged in oblique rows; a row of scales much larger than the rest along the dorsal line, and much more strongly carinated, forming a slight dorsal crest; a gular fold; scales of abdomen quadrangular, smooth; femoral pores; tail covered with transverse rows of verticillate and carinated scales.

DIPSO-SAURUS DORSALIS.

Syn.—Crotaphytus dorsalis, Baird and Girard. Proceed. Acad. Nat. Sc. 1852, p. 126.

Coloration.—Body presenting numerous lines of red upon the sides, with blotches of the same color over the shoulders, the intervening spaces numerous white spots; upper surface and sides of tail marked with red spots arranged in transverse rows; upper surface of extremities with red; throat, abdomen, under surface of extremities and tail white. The coloration, as described by Profs. Baird and Girard, appears to be taken from younger specimens, one such before me corresponding with it precisely.

Dimensions.—Length of head 7 lines; breadth 7; length of head, neck and body to vent, 8 inches, (Fr.); of tail 7½ inch.; anterior extremities 1½ inch.; posterior 3 inches to extremity of nail of longest toe.

Habitat.—Desert of the Colorado, to which it appears to be confined. The smaller specimen from near Fort Yuma, the large one found in the desert between Rum River and the Tejon Pass, (pronounced Tahon;) a country without water, not sandy, but arid, bearing artemisia, &c.

Gen. remarks.—This animal differs from Crotaphytus (Holbrook) in having the upper part of the body covered with quadrangular scales, instead of granulations, and the larger row of carinated dorsal scales giving rise to a slight crest, no trace of which exists in Crotaphytus, from Leiolepis in having tubercles, and not plates, upon the head and from Homalo-saurus in the form of the marginal plates of the upper jaw.

URO-SAURUS, *Hallowell.*

Gen. char.—Body very slender, which, as well as the head, is much depressed; scales upon the back much larger than those upon the sides, and strongly carinated; nostrils superior in a single scale; head covered with plates; aural apertures very distinct; a gular fold; extremities slender; toes 5—5; tail very long and tapering, verticillate; femoral pores, but no anal ones.

URO-SAURUS GRACIOSUS, *nob.*

Sp. char.—Head yellow, with a few brownish marks; seven longitudinal rows of scales upon the back very distinctly carinated. Color of body yellowish, mixed with brownish and black spots; extremities yellowish, with dark colored transverse bands; tail of same color above as body; under surface silvery white, with blackish spots; eleven femoral pores.

Dimensions.—Length of head 5-8ths inch; greatest breadth ½ inch; length of head, neck and body to vent, 1½ inch; of anterior extremities to extremity of

longest toe 6-8ths inch; of posterior to extremity of longest toe 1¼ inch; of tail 4¾ inches; total length.

Habitat.—Lower California.

Gen. Remarks.—The contrast between the large carinated scales upon the back, and the small ones upon the sides resembling granulations, is very striking; the long and slender tail also is remarkable. In these respects Uro-saurus is allied to Tachydromus, but the plates upon the head are very different.

SCELOPORUS, *Wiegmann.*

Sceloporus magister, *nob.*

Sp. char.—Larger than any known species of Sceloporus, and remarkable for its large and strongly carinated scales, which are very much denticulated posteriorly; anterior margin of aural apertures strongly denticulated; upper part of head, body and extremities and tail straw color, without spots or blotches; a black triangular blotch upon each side of the neck, in front of the shoulder, the base below; two large bluish green blotches upon the abdomen, one on each side and one upon the neck; the rest of the under surface light straw color; tail long, very thick at base, tapering near the point; twelve femoral pores on each side.

Dimensions.—Length of head, neck and body to vent, 4 6-8ths inches; greatest breadth of head 1¼ inch; length of head 1¼ inch; of tail 1-5th inch; of anterior extremities 1¼ inch; of anterior foot to extremity of longest toe 1 inch; of posterior extremities 1 6-8ths inch; of foot to extremity of longest toe 1¼ inch: total length 9 6-8ths inches.

Habitat.—Near Fort Yuma, at junction of Colorado and Gila, also near Tuson in Sonora, upon a rocky soil.

Gen. remarks.—This species is remarkable for its large size and greatly developed spines. It is a much larger animal than the spinosus of Wiegmann, and wants the quadruple series of dark colored spots that exist in that animal. The posterior margins of the scales are strongly denticulated, which is not the case in spinosus, one of the characters of which is "squamis paucidentatis." From horridus, Wieg. it differs in coloration, arrangement of plates upon the head, and in the number of femoral pores, which in the latter are 4—5.

Sceloporus bi-seriatus, *nob.*

Sp. char.—Scales of the back much larger than those upon the sides. Five frontal plates in two rows; the middle of the anterior row largest; four intermasals; two very small plates between the anterior row and rostral; two vertical plates; one large plate on each side of the occipital, and two in front of them; posterior border of scales not denticulated. A narrow brownish vitta across the head near the middle of the superciliary plates; coloration of head resembling that of undulatus; light ash grey above, with a double row of dark-colored spots upon the back on each side of the dorsal line, extending a short distance upon the tail; extremities ash colored above, banded with black; under surface silvery grey, with two blue blotches, one on each side of the abdomen, and a blue blotch upon the chin; 20 femoral pores.

Dimensions.—Length of head, neck and body to vent, 3 inches: of tail 4½ inches; length of anterior extremities 5-8ths inch; of foot anteriorly to extremity of longest toe 5-8ths inch; of posterior extremity 1 inch; of foot posteriorly to extremity of longest toe 1 inch; total length 7½ inches.

Habitat.—Borders of El Paso Creek and in Tejon Valley. Constantly climbing up trees, when scared, to a distance of twenty or thirty feet, running along the ground and up the trees very quickly.

Gen. remarks.—Wants the undulating lines or bars of undulatus, these being replaced by the spots above described; the scales upon the sides are also much smaller than those of undulatus. This species resembles very closely the variabilis of Wiegmann, and is probably the same, notwithstanding certain differences in the description. In the absence of a good drawing, or authenticated specimen, we cannot pronounce, positively, whether they be the same or not, although inclined to the former opinion. Thus the head, according to

Wiegmann, is unicolor; and the plates upon the head cannot be said to be *ruguloso carinatis*, for they are for the most part smooth in bi-seriatus. It wants the white lateral line beneath the spots which is observed in scalaris, Wiegmann. The arrangement of the plates upon the head appears to characterize this species very well, being uniform, with unimportant exceptions, in all the specimens brought by Dr. Heermann.

Var. A. AZUREUS.—Body uniformly blue above, mingled with brown, the the blue color predominating; on the sides greenish with a metallic lustre; head brownish above; two large blue blotches upon abdomen, one on each side; rest of under surface silvery white with bluish tints, especially about the chin; scales large and strongly carinated, not denticulated posteriorly; tail stout at the base, much less tapering than in bi-seriatus; the plates of the head correspond precisely with those of the latter animal.

Dimensions.—Length of head, neck and body to vent, 3 2-8ths inches; of tail 3 5-8ths inches; of anterior extremities 1 inch; of anterior foot to extremity of longest toe 6-8ths inch; of posterior foot to extremity of longest toe 1 2-8ths inch; total length 6¼ inches.

Habitat.—Associated with bi-seriatus.

Var. B. VARIEGATUS.—Body light ash color, with transverse brownish bands and markings coalescing with each other, so as to give the whole a marbled appearance; head above ash color mingled with brown; extremities ash color, with transverse bands of brown; under surface silvery grey without bluish spots or blotches; 17 femoral pores, remarkably large; tail stout, thick at the base.

Dimensions.—Length of head neck and body 4¼ inches; greatest breadth of head 1 inch; length 1 inch; tail mutilated, circumference at base 1 2-8ths inch; length of anterior extremities 1¼ inch; of foot to extremity of longest toe ¾ inch; of posterior extremity 2½ inches; of foot, posteriorly, to extremity of longest toe 1 inch.

Habitat.—Same.

CNEMIDOPHORUS, *Dum. and Bib.*

Gen. Char.—Nostrils in the nasal plate near its posterior border; two superonasals; palate without teeth, with a shallow, triangular notch, posteriorly; scales smooth. (Dum. and Bibron.)

CNEMIDOPHORUS UNDULATUS,* *nob.*

Sp. char.—Body of moderate size; tail very long; head brownish above; upper part of body with three or four longitudinal bands of black with irregular margins; interspaces yellowish, with a tinge of red in some specimens; sides margined with black and white or light yellow; tail black and light yellow, presenting numerous transverse rows of rhomboidal carinated scales; upper part of extremities same color as sides of body; under surface silvery grey, with a number of minute black spots upon the abdomen, throat and chin; tail round, moderately thick at base, tapering to a point; 20 pores very distinct; 8 rows scales upon the abdomen.

Dimensions.—Length of head 1 inch; greatest breadth posteriorly half an inch; of head, neck and body 3¼ inches; of anterior extremities ¾ inch; of foot to extremity of longest toe half an inch; of posterior extremities 1½ inch; of foot to extremity of longest toe 1 inch; of tail 7¼ inches; total length 11¼ inches.

Habitat.—Near Fort Yuma, in San Joachim Valley.

Gen. observ.—Cnemidophorus perplexus, according to Profs. Baird and Girard, has seven longitudinal yellowish lines along the back; in all the specimens above described, five in number, there are but four. Profs. Baird and Girard state that in some specimens of Cnemidophorus tigris, "four longitudinal yellow stripes may be seen extending from the occiput to the base of the tail, and occasionally a little distance on the latter. In the young state the black patches predominate, unite, and form as it were the ground color, and the yellow constitutes irregular small spots."—Vide *Stansbury's Report*, Appendix C. p. 339.

* From the undulating longitudinal dark lines along the back.

he total length of Say's Ameiva tesselata is 1 foot, tail 8½ inches,—in respect corresponding very well with the above, but none of the specimens ient the tesselated appearance described by Say, the "transverse lines ding the whole surface in a tesselated manner."

EUMECES, *Wiegmann.*

p. char.—Two superó-nasals contiguous; internasal much more extended in lateral than antero-posterior direction, its internal margins in contact with anterior frenal; two fronto-nasal, contiguous, lateral border in contact with posterior frenal; frontal hexagonal, elongated, broader anteriorly; fronto-etal rhomboidal, placed obliquely; inter-parietal broad, with an acute angle ont, passing in between the fronto-parietals; parietals oblong, quadrilateral; supra-orbitals; a small naso-frenal: an anterior and posterior frenal, the er much larger; twelve rows of smooth hexagonal scales upon the back, be- ing with those marked by the lateral vitta.

olor.—Shining black or brown above, with four bluish vittæ, the two in- al broader than the others, commencing about midway upon the sides of the d immediately over the eyes, and extending along the back and terminating n the tail; the lateral ones commence at the anterior margin of the orbit, passing beneath it, extend upon the sides and are lost upon the tail; chin throat whitish; abdomen and under part of tail slate color; under surface of emities whitish.

imensions.—Length of head ¾ inch; breadth ½ inch; length of body and tail nches; of tail 2 3-8ths inches; of anterior extremities ½ inch; of posterior ch.

abitat.—Lower California, near Mohave River, and in San Bernardino Valley.

OPHIDIANS.

RHINOSTOMA OCCIPITALE, *nob.*

har.—Teeth of equal length, posterior ones not channelled; head depressed, small; a rostral, two anterior and two posterior frontals; one anterior and posterior oculars; a vertical; two occipitals; a small frenal; nostrils in a le plate; seven superior labials, the eye resting on the third and fourth. om. scuta, 158; subcaud. 34.

oloration.—Milk white above with 41 transverse black bands, including n upon tail and one upon posterior part of head; six complete rings upon throat and abdomen white; under part of tail white, with transverse bands isuous with those upon back of tail; 15 rows of smooth quadrangular scales.

imensions.—Length of head 4 lines, breadth 2½ lines; of body 9 inches 2 s; of tail, 1 inch 7 lines; total length, 9 inches.

ab.—Mohave Desert.

en. Remarks.—This serpent resembles no other as yet figured in N. Ame- , and is therefore easily recognized. In the genus Sonora of Prof. Baird and ird, there are, according to them, three postoculars, and two nasal plates on side with the nostril between them. In Sonora semiannulata there are nty-five transverse black bands upon the body, and six complete rings upon tail. The rings in Col. (Zacholus) zonatus of Blainville completely sur- d the body. The nostrils, according to Blainville, open between two plates, Wagler has them each in a single plate, "in medio scutelli sitis," in his defi- on of Zacholus. Wagler, however, cites Col. Riccioli, Metaxa Serp. Rom. ppearing to belong to this genus, "scheint als gattung zu geboren," but C. aparte represents the nostrils as placed in the commissure between two scuta i narici sono situate alla commissura di duo scutelli nasali."[2] Blainville esents two black half rings upon the head. Zacholus zonatus is probably d to Coronella balteata.

CROTALUS CERASTES, *nob.*

p. Char.—Head covered with polygonal tubercles, larger in front, the latter ree rows; two small quadrangular plates on each side, between the nostril the vertical rostral; two quadrangular internasals; external border of supra-

ciliary plates developed, so as to present two horn-like processes, one on each side of the head at their middle; nostrils small; pits between the eyes and nostrils large; twenty rows of carinated scales, the inferior rows near the abdomen smooth; body slender, much compressed; tail very short, with three or four rattles.

Coloration.—Head ash color above, a black band running from the posterior margin of the orbit to within a line of the occiput; a series of forty-one transverse brownish bands, yellow in the centre, along the back; general color of animal above light yellow; several transverse bands upon the tail; under surface light yellow, slightly clouded with spots near the external margin of the abdomen; abdom. scut. 146; two rows of bifid post-abdom. scutell.; 14 single caudal scuta; three inferior rows bifid.

Dimensions.—Length of head 5 lines; greatest breadth 4 lines; length of body 8 and 3-8th inches; of tail, 1; total length 9¼ inches.

Hab.—Borders of the Mohave river, and in the desert of the Mohave,—always in the dry sandy soil, with no vegetation whatever. Maximum size one foot and a half; occurs in large numbers, and is also seen in the Desert of the Colorado, but is much less abundant, Dr. Heermann not having observed it there. The river Mohave spreads itself out in the desert and there loses itself, and upon the floating sand hills near it these animals are found. The Crotalus Lecontii is never seen with them. The Mohave empties into a salt lake about 15 miles in extent.

Gen. Remarks.—I supposed that this animal might be the young of Crotalus Lecontii, but Dr. Heermann informs me that the Lecontii is never found with it, and that it never attains to more than a foot and a half in length, and always presents the horn-like processes above described. It would appear to be the representative of the Vipera Cerastes of Africa, and is found, like that serpent, in desert and sandy regions, and is also slow and sluggish in its movements. The genus Cerastes, proposed by Wagler and adopted by Dumeril and Bibron, it would appear should be dropped and Vipera substituted.

BATRACHIANS.

RANA NIGRICANS, *nob.*

Sp. char.—Remarkable for its size; color uniform, dark brown, with numerous small black spots, and large blotches interspersed over the surface; sides somewhat lighter, marked with black; anterior extremities dark brown, or ash color above, blotched with black; posterior of same color, with numerous transverse black bands; chin, throat and abdomen straw color, shaded with brown; under surface of extremities yellowish, marked with black.

Dimensions.—Length of head, neck and body, 4½ inches; greatest breadth of head, 1½ inches; length of anterior extremities, 1¾ inches: of foot anteriorly to extremity of longest toe, 1 inch; of posterior extremity, 5 inches; length of hind foot, 1¾ inches; of foot posteriorly to distal end of longest toe, 2¾ inches.

Hab.—El Paso Creek.

Gen. Observations.—This species is remarkable for the great length of its posterior extremities; allied to Rana Draytoni, Baird and Girard, but the posterior extremities appear to be longer.

HYLA NEBULOSA, *nob.*

Sp. char.—Uniform light grey upon the upper part of the body and sides; snout light ash; a considerable number of dark colored subcircular spots about a line in diameter, scattered over the upper part of the body and upon the sides; extremities ash color above, with greyish spots; abdomen greenish yellow; chin light yellow; under surface of extremities orange colored; abdomen and under surface of extremities granulated.

Dimensions.—Length of head, neck and body, 1¼ inches; greatest breadth of head, ¼ inch; length of anterior extremities, 1¼ inches; of posterior extremities 2 and 3-8th inches to extremity of longest toe.

Hab.—Tejon Pass.

Dr. Cantor, in a paper published in the Zoological Transactions of London, asserts positively that they are, and recent observations made by Dr. Burnet of Boston, have confirmed his statements. The tree snakes are not found in Europe, neither are the Calamars, nor Lycodons and Heterodons. The Bungari inhabit Ceylon, India, Bengal and Java. The Basilisk is found in Celebes, Amboina and the Phillipine Isles; Dilophyrus in India and the Malayan Peninsula.* No species of Coronella is said to exist in New Holland (Schlegel.) Eryx is found only in the East.

"Only one species of mammal is indigenous to the Gallapagos Islands, viz., a large and peculiar kind of mouse; but the number of lizards, tortoises and snakes is so great that it may be called a land of reptiles. The variety indeed of species is small, but the individuals of each are in great abundance. There is a turtle, a large tortoise, (Testudo indicus,) four lizards, and about the same number of snakes, but no frogs or toads. Belonging to the family Iguanidæ, Bell, are two species of Amblyrhynchus, one terrestrial, the other marine; the marine species is extremely common on all the islands throughout the Archipelago. It lives exclusively on the rocky sea beaches, and is never seen even ten yards inland. The usual length is about a yard, but there are some even four feet long. It is of a dirty black color, sluggish in its movements on the land, but when in the water it swims with perfect ease and quickness by a serpentine movement of its body and flattened tail, the legs during this time being motionless and collapsed on its sides. Its limbs and strong claws are admirably adapted for climbing over the rugged and fissured masses of lava which everywhere form the coast. In such situations a group of six or seven of these hideous reptiles may oftentimes be seen on the black rocks, a few feet above the sea, basking in the sun with outstretched legs. Their stomachs, on being opened, are found to be largely distended with minced seaweed, of a kind which grows at the bottom of the sea, at some little distance from the coast. To obtain this the lizards go out to sea in shoals. One of these animals was sunk in salt water from the ship, with a heavy weight attached to it, and on being drawn up again, after an hour, it was quite active and unharmed. It is not known by the inhabitants where this animal lays its eggs; a singular fact, considering its abundance, and that the natives are well acquainted with the eggs of the terrestrial *Amblyrhynchus*, which is also herbivorous." Lyell's Geology, p. 280; Darwin's Journal, ch. xix. The Amblyrhynchus inhabits also S. America.

In the Island of Cuba are found the following genera: Emys (decussata and rugosa, Shaw) Crocodilus (rhombifer and acutus,) Holotropis, Cyclura, Anolis, Acanthophis, Chamæleolis, Hemydactylus, Sphæriodactylus, Gymnodactylus, Amphisbæna, Typhlops, Tropidophis, Leionotus, Epicrates, Calamaria, Coluber, Phyllobates, Trachycephalus, Bufo. The greater part of these genera are unknown in the United States.

In Mexico there exist a number of very remarkable types, differing entirely from those of our own country, viz., the genus Heloderma (horridum,) Cyclura (denticulata and punctata,) Corythæolus (vittatus,) Chamæleopsis (Hernandesii); besides these are several species of genera belonging to our fauna, viz., Sceloporus (torquatus, formosus, spinosus, and others,) and six species of Gerrhonotus.†

The following remarks are made by Prof. Agassiz: "It has been already stated that the present distribution of animals agrees with the distribution of extinct types belonging to earlier geological periods, so that the laws which regulate the geographical distribution of animals seem to have been the same at all times, though modified in accordance with the successive changes which the animal kingdom has undergone, from the earliest period of its creation to the present day. The universal law is that all animals are circumscribed within definite limits. There is not one species which is uniformly spread all over the globe, either among the aquatic races or among the terrestrial ones. The special

* For plate of Dilophyrus grandis (Gray) see Cantor, pl. xx. p. 34.

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Remarks on the Geographical distribution of Reptiles, with descriptions of several species supposed to be new, and corrections of former papers.

By EDWARD HALLOWELL, M. D.

GENUS EUPREPIS.

Gen. character.—Nostrils in the posterior part of the nasal plate; two super nasals; palate with a triangular furrow, more or less profound; scales carinated pterygoid teeth. (Dum. and Bib.)

EUPREPIS STRIATA, *nob.*

Sp. character.—Nasal plates well developed, two super-nasal contiguous; an internasal; two fronto-nasal wide apart; a frontal broad in front, narrow posteriorly; two fronto-parietal, more or less quadrilateral, contiguous; an inter-parietal very narrow posteriorly, broad with an acute angle in front; two parietals, no occipital; two freno-nasal, and two freno-orbital plates; head brownish above in front, and upon the sides, blackish posteriorly; ground color of body and tail above deep black, the middle of each scale dusky white, the back and tail presenting therefore numerous alternating lines and bands of black and white; upper surface of extremities blackish with white spots; sides of body marked with black and dusky white and brown; chin, throat, abdomen, under surface of extremities and tail silvery white; 21 rows of strongly carinated scales; the greater number of these scales present each five carinæ upon the surface.

Dimensions.—Length of head 13 lines; breadth 8 lines; length of neck and body 3¼ inches; of tail 4¼ inches; of anterior extremities 1 inch 4 lines; of posterior 1 inch 6 lines; total length 9 inches 4 lines.

Habitat.—Liberia, western coast of Africa. Two specimens in museum, presented by Dr. Henry A. Ford. There is in the Academy another specimen of this genus from the same locality, described by me some years ago as Plestiodon Harlani. It is a much larger animal and it differs from the present species greatly in its coloring, being uniformly yellowish brown above with distinct bars of dark brown upon the sides. The scales in Harlani are tricarinate. I have not been able to discover pterygoid teeth in either of these animals.

PACHYDACTYLUS TRISTIS, *nob.*

Sp. character.—Color above yellowish, with numerous brownish lines upon the upper surface of the tail; throat, abdomen, under surface of extremities and tail yellowish; body and extremities covered above with granulations; abdomen with smooth scales; granulations upon under surface of the tail larger for the most part than those upon upper; nostril plate quadrangular, two small plates immediately above it; head covered with small granulations.

Dimensions.—Length of head 11 lines; of body to vent 2 inches 5 lines; from vent to extremity of tail 2 inches 4 lines; total length 5 inches 6 lines.

Habitat.—Liberia, west coast of Africa. Specimen in museum presented by Dr. Gobeen.

CELOPELTIS, *Wagler.*

Gen. character.—Head sub-distinct, ovate, quadrangular; rostrum narrow, acute, furrowed in front of the eyes, supra-orbitar plates projecting considerably; eyes oblong, rotund; pupil round; vertical scute long, narrow; scales not densely approximated, lanceolate, concave; abdomen and under part of tail rounded; two posterior oculars, one anterior, one loral, quadrate. (Europe and Africa.)

CELOPELTIS VIRGATA, *nob.*

Sp. character.—Color uniform, brown above, reddish upon the sides, and to a certain extent upon the abdominal scuta; middle portion of abdominal scuta straw color; two narrow yellowish vittæ upon each side of the head, the superior passing immediately over the eye; scales smooth, 23 rows; entire length 1 foot 8½ inches, (Fr.) length of tail 3½ inches; abdom. scuta 192, subcaudal 55.

Habitat.—Liberia, west coast of Africa. Two specimens in museum of Academy, presented by Dr. Ford.

Fam. VIPERIDÆ.

Gen. Brachycranion, *Hallowell*.

Gen. char.—Head short and thick, covered with seven plates, exclusive of the rostral, viz., one pair of frontal, a vertical, two supra-orbitar, and two occipitals, one ant-orbitar and one post-orbitar; margin of orbit formed by supra-ocular, posterior and anterior oculars, and superior margin of fourth labial plate. Subcaudal plates single; palatal, but, with the exception of the fangs, no mandibular teeth.

Brachycranion corpulentum.

Sp. char.—Occipitals subquadrangular; four supero-labials; one large temporal plate immediately behind post-ocular; scales smooth, quadrangular, 25 rows; color shining black above, brownish beneath; 182 abdominal scuta; 25 subcaudal.

Dimensions.—Length of head ½ an inch, breadth 5 lines; length of body 1 foot 6 inches; of tail 2 inches; circumference 1 inch 8 lines.

Habitat.—Liberia, W. coast of Africa. Presented by Dr. Ford to the Academy.

Gen. observ.—The vipers among venomous serpents are characterized chiefly by the absence of forsettes behind the nostrils, and the presence of a double row of plates under the tail. In the greater number, the head is covered with scales as upon the body; in others there are also plates of various forms, and irregularly disposed, as in Vipera berus, while others have upon the head smooth and regularly formed plates, like those of Coluber and the genus Sepedon of Merrem. In others the subcaudal plates are bifid toward the anus, and single near the extremity of the tail, or alternately single and bifid as in Acanthophis.

Bungarus, a genus of Colubriform venomous serpents inhabiting Asia, has a dorsal row of hexagonal scales larger than the others, with nine plates upon the head and single plates under the tail. Elaps has nine plates upon the head, but the plates under the tail are bifid. In the animal under consideration there are, as above stated, but seven plates upon the head exclusive of the rostral, there being but one pair of frontals (two in Elaps, Acanthophis and Bungarus) and single plates under the tail. These characteristics, with the peculiar form of the head and the presence of fangs, are such as to give it a distinct generic character different from those of any of the serpents with which I am acquainted. The appearance of Brachycranion corpulentum is very repulsive. Since the above was written, I have observed in the work of Dr. Andrew Smith,* on the Zoology of South Africa, the description and figure of a reptile which resembles the one just described, to which the name Atractaspis Bibronii has been given. The body in Atractaspis Bibronii is much more slender, is longer, but the tail is shorter. The shape of the head in the figure is very different, giving one the impression of a harmless serpent, as Dr. Smith at first supposed it to be, that of the other induces at once a strong suspicion of its venomous character. There are but twenty rows of scales in Bibronii, and the general color of the body and tail is intermediate between blackish green and orange colored brown. The fangs in Corpulentum also differ from those of Bibronii in their dimensions, being not more than half the length of those in the figure of Bibronii. Like them, they do not appear to be capable of complete erection. Upon the upper surface of the tail in Corpulentum, along the median line near its middle, is a row of six broad scales and four others near the tail, somewhat similar in appearance to those upon the back in Dipsas.

Chamæleo gracilis, *Hallowell*, Journal Acad. Nat. Sc. vol. viii. pl. 18. A good species. It differs considerably in its general appearance from Chamæleo dilepis of Leach, of which there are three specimens in the collection presented by Dr. Henry A. Ford, of Liberia. One of these on being opened was found to contain more than a dozen eggs. I thought at one time that possibly Ch. gracilis might be the female of Ch. dilepis.

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* Zoology of South Africa, by Andrew Smith, M.D., Reptiles, pl. 71.

EUPREPIS HARLANI, *nob.*

Syn. Plestiodon Harlani, Proceed. Acad. Nat. Sc., vol. ii. p. 170.

BOA LIBERIENSIS, *nob.* Abdom. scut. 257, subcaud. plates *single*, 53—50; longitudinal rows of scales.

Syn. Python Liberiensis, Proceed. Acad. Nat. Sc. vol. ii. p. 249.

DIPSAS BLANDINGII, *Hall.*, Proceed. Acad. Nat. Sc., vol. ii. p. 170.

Anterior teeth of lower jaw much larger than the others. Two teeth, one on each side in posterior part of upper maxilla provided, each with a sheath, and channelled anteriorly; four rows of teeth in the upper jaw, two in the lower. Seventeen rows of scales. Two anterior oculars, two posterior; a loral; nostrils between two plates, occipital large. Abdom. scuta 273. Subcaud. 131. Length of head, 1 inch 5 lines; of head and body 4 feet; of tail 1 foot (Fr.) 2½ inches. Schlegel remarks that the mode of dentition in Dipsas cynodon is unique in the genus, having one or more teeth much longer than the rest at the posterior part of the upper maxilla, others equally longer being found at the anterior extremity of the inferior maxilla and of the palatal bone. It will be observed that a similar arrangement exists in Dipsas Blandingii, although the animals differ greatly from each other. Triglophodon? Dumeril. Prodromus, class. des Ophid.

PSAMMOPHIS PHILLIPSII, *nob.*

Syn. Coluber Phillipsii, Proceed. Acad. Nat. Sc., vol. ii. p. 169.

A very well characterized species of Psammophis. Jaws very dilatable, several teeth in the anterior part of the lower jaw longer than the others; in the upper maxilla on each side two long teeth posteriorly, and two near the middle; teeth unequal; four first followed apparently by an interval, then the two anterior long ones; scales lanceolate, smooth, intermediate ones more narrow.

Psammophis Phillipsii differs greatly from Psammophis moniliger of the Cape. The two longitudinal rows of black spots are wanting in Phillipsii, and the latter is a much larger animal; 15 rows of scales.

CORONELLA TRIANGULARIS, *nob.*

Syn. Col. lævis, Proceed. Acad. Nat. Sc., vol. ii. p. 118.

17 rows of smooth scales, 21 in Coronella lævis. This animal has a general resemblance to the Coronella lævis, (pl. 12, Amphibia, Fauna Pontica) but the markings are very different, as is also the number of rows of scales. The tail is also longer. It may be considered as the representative of the Coronella lævis in Western Africa.

LEPTOPHIS SMARAGDINA, Boie.

Syn. Dendrophis smaragdina, Schlegel. LEPTOPHIS GRACILIS, Hall.—Proc. Acad. Nat. Sci., Vol. ii, p. 60. Fifteen rows of strongly carinated scales; anterior frontals rather longer than the posterior; nostrils between two plates; one long and narrow loral on each side; one ant-orbitar, two posterior orbitars; eight superior labials on the right side, nine on the left; inferior margin of orbit formed by the 4th and 5th on the right, and by the 5th and 6th on the left side of the head; posterior teeth not channelled. Since the above was read, we have received Vol. vii. part 1, of the Herpétologie générale, ou histoire naturelle complete des reptiles, par M. Dumeril, in which I observe that this animal has been placed in the genus Leptophis by that eminent herpetologist. This genus, as characterized by him, includes serpents with scales, sometimes carinated and sometimes smooth, a conclusion which we ourselves had also arrived at—the carination of the scales was added by Wagler. Proc. Acad. Nat. Sci., Dec., 1852, p. 203.

LEPTOPHIS VIRIDIS.—Proc. Acad. Nat. Sci., Vol. ii., p. 172. This is the young of Dinophis Hammondii. Journal Acad. Nat. Sci., Vol. ii., New Series, Part iv., p. 301, pl. 29.

DRYOPHIS KIRTLANDI, *nob.*

Syn. Leptophis Kirtlandi, Proc. Acad. Nat. Sci., Vol. ii., p. 62. Length of largest specimen 4 feet 2 inches; of tail, 1 foot 7½ inches; scales carinated. In the posterior part of the upper jaw, on each side, is a tooth much longer than

the others, and channelled anteriorly; 13 rows of scales, four upon the back carinated, the marginal row near the abdomen larger than the others. Of this species there are five specimens in the collection of the Academy, three from Dr. Savage, and two fully grown from Dr. Ford. These specimens illustrate very well the inconstancy of certain plates about the head in serpents. In one the loral plates are entirely absent, the posterior frontal passing down to join the superior labial plates; in a second of the smaller specimens there are two lorals on each side; in a third there are two on one side (the left) and one on the other; in one of the larger specimens there are two on each side, and in the other, two on the left and one on the right.* Wagler, in his definition of the characters of the genus Dryophis states that there is *no loral* plate, the posterior frontals passing down along the side of the head, and coming in contact with the superior labials.

Causus rhombeatus, Wagler. Natur. System. der Amphib. p. 172.

Naja rhombeata, Schlegel. Physiognomie des serpens, Vol. ii., p. 483, pl. xvii, figs. 12 and 13.

Scytodon rhombeatus, Lichtenstein. Berlin. Dub. Verz. 1823, S. 106.

Scheuzer. Phys. Sacr. t. 717, p. 1.

Vipera V. nigrum, Cuvier. Reg. Anim. T. ii., p. 92, n. 4.

Distichurus maculatus, Hallowell. Journ. Acad. Nat. Sci. p. 8, pl. 19 (young).

The genus Distichurus was based, very improperly, upon a single specimen; and the characters in that were not of sufficient importance to establish a genus. The plates toward the extremity of the tail are not constantly single. In one out of four specimens which we have, they are bifid. In Crotalus the plates toward the extremity of the tail are sometimes bifid, and in Trigmocephalus also.

Bufo maculatus, *nob.*

Syn. Bufo cinereus. Proc. Acad. Nat. Sci., Vol. ii., p. 169. The name cinereus has long been applied by Schneider, Daudin, Merrem and others to the Bufo vulgaris of Europe. Bufo maculatus resembles somewhat Bufo pantherinus, but differs from it, according to the description of Dumeril and Bibron, in the size of its tympanum, the breadth of which is considerably larger than the length of the upper eyelid. The form and arrangement of the markings differ greatly from those in the plate of Rüppel.

The Herpetology of Africa has as yet been but too imperfectly studied to enable us to comprehend the geographical distribution of the reptiles of this vast continent. The labors of Dr. Smith have left but little to be desired for the illustration of the southern part of it, and Rüppell has given good descriptions and drawings of a number of reptiles in N. Africa and Abyssinia. These, with the great work on Egypt, and the late production of M. Bianconi, on the Natural History of Madagascar, constitute the most reliable sources of information appertaining to this subject. Let us hope that our own government will do for the natural history of Western Africa what the English government has done for that of the Southern portion of this great continent.

The reptiles common to both Northern and Western Africa, so far as we know, are Agama colonorum, Chamæleo dilepis (bilobus) Kinixis belliana Echidna arietans, Naja haj., var. black, Vipera (cerastes) nasicornis, the genera

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*This inconstancy is observed in other genera. In Hydrus pelamoides the frenal shield observed by M. Schlegel was not present in four individuals, examined in the Straits of Malacca: in all *Hydri* the shields of the head are liable to considerable individual varieties of form—(Cantor)*—"Hydrus bicolor—Schneider—a frenal shield has been observed in some individuals, but it was absent in that examined in the Straits of Malacca, nor does it exist in the specimens in the Museum of the Asiatic Society." p. 135. "In Dryinus prasinus, Reinwardt, there are two, sometimes three frenals on each side." p. 83.

*Catalogue of Reptiles inhabiting the Malay Peninsula and Islands, collected or observed by Theodore Cantor, Esq., M.D., Bengal Medical Service, 1847.

Pachydactylus, and Onychocephalus, and Causus rhombeatus. The genera Uromastyx and Stellio are found in Northern, but do not appear to exist in S. Africa. The study of the geographical distribution of animals, and especially of reptiles, presents many very remarkable facts. Some species appear to have a very wide distribution, others a very local. The Cistudo Carolina, for example, is found in almost every part of the United States, but Emys Muhlenbergii and Testudo polyphemus have a very limited range, the one being known only in a small portion of the Northern States and the other of the Southern. The species of reptiles of the United States are entirely different from those of Europe, but there are a number of genera common to both; among these are Testudo, Emys, Coronella, Tropidonotus, Psammophis, Coluber, Rana, Bufo, Salamandra.

The genera Crotalus, Trigonocephalus or Elaps, all of which exist in the United States, are not found in Europe, but the venomous serpents are replaced by the viper, of which there are several species—none of which are found with us, the serpent called viper in the U. States being a Heterodon, a very harmless animal. The viper is common in England but does not exist in Ireland, neither does the genus Bufo. Some genera are very limited in their distribution, being found in certain localities and nowhere else. Thus Amphiuma and Siren are found in the Southern States; Menopoma, in the West and South; Menobranchus, in the Western waters of the United States; Phrynosoma in New Mexico and Texas; Anota, of which but two specimens have yet been discovered, and Homalosaurus in the Desert of the Colorado; Holbrookia or Cophosaurus in Texas; Platysaurus, in Southern Africa; Hypochthoon in Illyria.

The species on the East and West Coast of South America differ almost entirely from each other. The genus Proctotretus, comprising numerous species, is found only in Peru. Other genera have a much wider distribution, but are confined to certain large portions of the globe. Thus the Boas exist for the most part in South America, the Pythons in Africa. According to Schlegel, no species of serpent is found in all parts of the world, the Tortrix not an exception, not being known in the United States. Gerrhosaurus is found in California, there being but one species known in that State, but there are six species of the same genus in Mexico, and six others, all described by Dr. Smith, exist at the Cape of Good Hope.

My friend, Professor Baird, informs me that he has recently received, from the Western portion of the United States, a specimen of Dipsas, a genus of serpents not hitherto known to inhabit the United States. The genera Chamæleo, Euprepis, Eremias, Cordylus, Gecko, Hemydactylus, Ptyodactylus, Stenodactylus, Phyllodactylus, Acanthodactylus, Zonurus, Varanus, are entirely unknown in the United States, nor are there any true Lacertæ. Among fresh water tortoises, the Emydes of the United States are very numerous, Prof. Holbrook having figured as many as seventeen species; they occur, also, in great numbers in India, twelve species having been described by Dumeril and Bibron, in their great work on Reptiles. It is very remarkable, however, that but one species of Emys, the Emys spengleri, of which we have the shell only in the Academy, has been described as existing in the whole continent of Africa, whereas the tortoises in the Southern portion of that country are numerous. Two species of Sternothœrus are described as belonging to the island of Madagascar, the niger and nigricans. We have the shell of one from Western Africa, which probably belongs to the latter species. Among serpents the genus Tropidonotus has a very wide range, being found more or less abundantly in almost every part of the globe except Africa and Australia. The genus Trigonocephalus is not found in Africa, but the vipers in that quarter of the globe are numerous, no less than six species being described by Dr. Smith as inhabiting S. Africa, viz.: Echidna arietans, atropos, atropoides, inornata, and Cerastes cornutus and ocellatus. To these may be added the Vipera nasicornis, or Natter Jack, which is found both in Southern and Western Africa. Among the most remarkable of serpents are those comprised in the genus Hydrophis. They are sea serpents, and "inhabit exclusively the inter-tropical latitudes of the Indian seas and of the great Pacific Ocean."

It has been a matter of doubt whether these animals are poisonous or not; but

Dr. Cantor, in a paper published in the Zoological Transactions of London, asserts positively that they are, and recent observations made by Dr. Burnet of Boston, have confirmed his statements. The tree snakes are not found in Europe, neither are the Calamars, nor Lycodons and Heterodons. The Bungari inhabit Ceylon, India, Bengal and Java. The Basilisk is found in Celebes, Amboina and the Phillipine Isles; Dilophyrus in India and the Malayan Peninsula.* No species of Coronella is said to exist in New Holland (Schlegel.) Eryx is found only in the East.

"Only one species of mammal is indigenous to the Gallapagos Islands, viz., a large and peculiar kind of mouse; but the number of lizards, tortoises and snakes is so great that it may be called a land of reptiles. The variety indeed of species is small, but the individuals of each are in great abundance. There is a turtle, a large tortoise, (Testudo indicus,) four lizards, and about the same number of snakes, but no frogs or toads. Belonging to the family Iguanidæ, Bell, are two species of Amblyrhynchus, one terrestrial, the other marine; the marine species is extremely common on all the islands throughout the Archipelago. It lives exclusively on the rocky sea beaches, and is never seen even ten yards inland. The usual length is about a yard, but there are some even four feet long. It is of a dirty black color, sluggish in its movements on the land, but when in the water it swims with perfect ease and quickness by a serpentine movement of its body and flattened tail, the legs during this time being motionless and collapsed on its sides. Its limbs and strong claws are admirably adapted for climbing over the rugged and fissured masses of lava which everywhere form the coast. In such situations a group of six or seven of these hideous reptiles may oftentimes be seen on the black rocks, a few feet above the sea, basking in the sun with outstretched legs. Their stomachs, on being opened, are found to be largely distended with minced seaweed, of a kind which grows at the bottom of the sea, at some little distance from the coast. To obtain this the lizards go out to sea in shoals. One of these animals was sunk in salt water from the ship, with a heavy weight attached to it, and on being drawn up again, after an hour, it was quite active and unharmed. It is not known by the inhabitants where this animal lays its eggs; a singular fact, considering its abundance, and that the natives are well acquainted with the eggs of the terrestrial *Amblyrhynchus*, which is also herbivorous." Lyell's Geology, p. 280; Darwin's Journal, ch. xix. The Amblyrhynchus inhabits also S. America.

In the Island of Cuba are found the following genera: Emys (decussata and rugosa, Shaw) Crocodilus (rhombifer and acutus,) Holotropis, Cyclura, Anolis, Acanthophis, Chamæleolis, Hemydactylus, Sphæriodactylus, Gymnodactylus, Amphisbæna, Typhlops, Tropidophis, Leionotus, Epicrates, Calamaria, Coluber, Phyllobates, Trachycephalus, Bufo. The greater part of these genera are unknown in the United States.

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adaptation of animals to certain districts is not merely limited to the individual species. We observe a similar adaptation among genera, entire families, and even whole classes. For instance, all Polypi, Medusæ and Echinoderms, that is to say, all Radiata, without exception, are aquatic. That large group of animals has not a single representative upon any part of the surface of the globe, and during all periods of the existence of our earth we find that they have been limited to that liquid element. And they are not only aquatic, they are chiefly marine; but exceedingly few of them are found in fresh waters. Among mollusca we find almost the same adaptation; their element also is the sea. The number of fresh water species is small, compared with that of marine types; and we find terrestrial species in only one of these classes. In former periods also mollusca were chiefly marine; fluviatile and terrestrial types occurring only in more recent periods." p. 195. The number of "marine species of fishes is far greater than of the fresh water kinds. Among reptiles there are many which are aquatic, either throughout life, or through the earlier period of their existence. But as if animal life rose to higher organization as it leaves the ocean to inhabit dry land or fresh waters, we find that the greater number of the aquatic reptiles are fluviatile and but a few marine." The four great types, Radiata, Mollusca, Articulata and Vertebrata were introduced at the beginning simultaneously. However, the earliest representatives of all these great types were aquatic. We find in the lowest beds which contain fossils, polypi, together with star fishes, bivalve shells, univalve chambered shells, cases of worms and crustaces, being at least representatives of seven of nine classes of invertebrate animals, if we are not allowed to suppose that medusæ existed also, and if insects were still wanting for a time. But in addition to these, fishes among vertebrata are introduced, but fishes only, all of which are exclusively marine. At a somewhat later period insects come in. We find next reptiles in addition to fishes, the lower classes or invertebrates, continuing to be represented through all subsequent epochs, but by species changing gradually at each period, as all classes do after they have been once introduced. The first representatives among reptiles are marine, next huge terrestrial ones, some perhaps flying types, and with them, and perhaps even before, the birds, allied to the wading tribes. Still later mammalia, beginning again with marine and huge terrestrial types, followed by the higher quadrupeds. And lastly, man, at the head of the creation in time as well as in eminence, by structure, intelligence, and moral endowments."—Geographical Distribution of Animals, p. 197.

For reliable plates illustrating genera and species of reptiles, vide among other works,—

Cuvier, Règne Animal. 4to edit. Paris.

Griffith's Animal Kingdom. Reptilia. London, 1832.

Duméril et Bibron. Herpétologie générale, ou Histoire Naturelle complete des Reptiles. Paris, 1834.

Holbrook, North American Herpetology. 5 vols. 4to. Philad., 1842.

Bonaparte, Iconographia Fauna Italica, Roma. 1832—41.

Illustrations of Zoology of Southern Africa, by Andrew Smith, M.D. Reptilia. London, 1849.

Voyage dans la Russie Meridionale et la Crimée, executé sous la direction de M. Anatole de Demidoff. (Fauna Pontica.) Paris, 1842.

Voyage dans l'Amerique Meridionale, par Alcide D'Orbigny. Reptiles. Paris, 1847.

De La Sagra, Histoire Naturelle de l'ile de Cuba. Fol. Paris.

Atlas zu der Reise im Nordlichen Africa, par Edward Rüppell. Frankfort am Main, 1826.

Neue wirbelthiere zu der Fauna von Abyssinien gehörig entdeckt und beschrieben von Dr. Edward Rüppell. Frankfurt am Main. 1835—40.

Fauna Caspio-Caucasia, nonnullis observationibus novis, illustravit Edouardus Eichwald. Petropoli, 1841.

Untersuchungen uber die Fauna Peruana von J. J. M. Tschudi. St. Gallen. 1844—46.

Zoologischer Atlas enthaltend Abbildungen und Beschreibungen neuer Thierarten, beobachtet von Dr. Fried. Escholtz. Berlin, 1829.
Voyage dans l'Inde par Victor Jacquemont. Atlas. Paris, 1844. (Sitane, Calotes, Chamæleo vulgaris.)
The Zoology of the Voyage of H. M. S. Beagle; edited and superintended by Charles Darwin, Esq., M.A., F.R.S., F.G.S.C., &c. London, 1842.
The Zoology of Capt. Beechy's Voyage. London, 1839.
Guerin. Iconographie du règne animal. Paris, 1829—44.
Faune Française. 3 v. 4to. Paris.

Description of four new species of Viviparous Fishes from Sacramento River, and the Bay of San Francisco. Read before the California Academy of Natural Sciences, May 15th, 1854. By W. P. Gibbons, M.D.

Hysterocarpus Traskii, Gibbons.

Body ovate, sub-compressed. Jaws with a single row of conical teeth. Opercle and preopercle with scales, and with a membrane round the edge. Dorsal fin commences opposite the pectoral, has seventeen strong curved spines, the first short, the succeeding ones increasing regularly in length to the sixth, which is the longest, and eleven articulated rays. The spinous rays lie in a groove, which conceals the first two; the remainder project an inch and a quarter above the scales, and lapping by each other alternately form, in this position, a double row.

Pectoral subquadrangular, with the lower edge rounded, and the first ray short and subspinous. First ray of the ventrals shorter than the others, spinous and curved.

First three rays of the anal fin with short, thick and curved spines, the middle one largest.

Body arched, the radius of curvature being least along the anterior half of the dorsum. Facial line about 45°: profile slightly incurved along the line of the interparietal and frontal bones. Snout protractile, lips thick, lower jaw longest. Eyes rather large and near the facial outline. Nostrils double, covered with a valve half way between the anterior edge of the orbit and the upper lip.

Lateral line nearly concurrent with the back. Scales large, deciduous. Smaller on the summit of the head, and on the opercle, at the base of the tail, anal and ventral fins, and on the space bounded anteriorly by the ventrals and pectorals.

Extreme length 6.5 in., width 3 in., weight 2 oz.

Color. Back varying from ash color to dark brown; irregular black patches, approximating somewhat to bands, across the sides. Belly lemon yellow, becoming lighter and blending with the ash color up the sides. Sides, in some, punctated with black. Dark and yellow patches on the fins. D. 28, P. 18, V. 6, A. 25 to 28, C. 20.

Var. B. Facial line not so angular as the other, head deeper, and less dorsal curvature.

The anatomy of these fishes is similar to that of the viviparous species which I have already described, except that the uterus, instead of being bipartite, is ovoid, having but a single umbilical cord, which returns its venous blood into the portal system. Intestinal canal 6 in. long, enlarged at each extremity. The specimens of this fish were presented to me for description by my friend, Dr. J. B. Trask, who obtained them through the kindness of Mr. Morris, from the lagoons of the Sacramento river, and from the river itself, where they are found as high up as the fishermen have yet been. They are the first specimens of the fresh water vivipara that have come to hand.

Hyperprosopon argenteum, Gibbons.

Body compressed, oval. Jaws with a double row of teeth, inner row imperfectly developed. Cheeks and opercle scaly, membranous round the edges.

Dorsal fin commences behind the pectorals and ventrals, has eight or nine spinous, slightly curved rays, first short, half as long as second, second and third half as long as its succeeding one. Articulated rays 28. Dorsal groove obsolete along soft rays, the spinous rays projecting above it. Pectoral cuneate, with one very short subspinous ray. Ventrals with one spinous and five articulated rays; connected with the abdomen by a membrane. A space extending from the base of the ventrals to the vaginal orifice ½ in. wide, free of scales. First three rays of anal fin spinous; two rows of fine scales along the base of the anterior third; the posterior two thirds situated in a groove. Nostrils double, anterior ones closed with a valve.

Back regularly arched, with a slight incurvation in some along the frontal bone. Curve of the belly greater than that of the back. Latter line commencing at the upper angle of the opercle and nearly concurrent with the back. Eyes very large, irides white, with a brown crescent above. Lips thin. Jaws slightly protractile. Upper lip on a line with the superior edge of the pupil, and with sides nearly vertical when the mouth is open. Head ash color and dark brown. Back light brown with metallic tints, silver white below the lateral line; 22—24 silver white longitudinal stripes. Scales above the lateral line, around the tail and anal fin smaller than the others. Outer edge of dorsal membrane, caudal and ventrals darkly punctate. Tips of the ventrals black. Length, including C. 9½ in., width with D. 4.5; weight ½ lb.; D. 8 to 9 spinous, 26 ramose; P. 1 spinous, 20—24 ramose; A. 3 spinous, 32 ramose; C. 22.

Var. A. *Punctatum*. Smaller than the above, with sides punctate with black, head shorter, eyes smaller, dorsal outline more curved and facial outline more continuous with the curve of the back than the preceding.

Cymatogaster aggregatus, Gibbons.

Back slightly arched, lateral line not concurrent with the dorsal outline, belly curved more than the dorsum. Space behind the ventrals covered with scales. Head ash color. Body with eight or nine longitudinal stripes of black dots, commencing below the lateral line and becoming obsolete opposite the end of the dorsal fin, which are interrupted by three or four lemon colored vertical bands. Back dark brown with metallic tints. Belly and tail end silver white. Extreme length 5 in.; width including the dorsal, 2.25; weight 2 oz; D. 21: 9 spinous, first short, second, third and fourth double the length of its preceding one; V. 6, first spinous; A. 15 or 16, first three short and spinous; C. 20; P. 20 or 24, first short and spinous.

Cymatogaster minimus, Gibbons.

Back more curved than the preceding; back brown and with metallic tints, sides punctate with black, with lemon color patches along the middle. A diffused dark brown or black spot on the dorsal about the end of the spinous rays; membranes of the dorsal, the tail and anal punctated black, ventrals yellow at base, tipped with black; a diffused black patch under the pectorals.

D. 23 or 24, V. 6, A. 18 to 20, P. 20 to 24, C. 20. About the same size as the preceding species.

Var. All the characteristics of the type, but with larger scales and of a lighter color. Extreme length 6 in., width 3.25.

Of the genus Cymatogaster I have already described two species.

Synopsis of the Dermestidæ of the United States.

By JOHN L. LE CONTE, M. D.

Following the arrangement proposed by Erichson, and introducing one new genus, Apsectus, our native genera are thus related:

1. Ocellus nullus . . . . . DERMESTES.
2. Ocellus frontalis:

A. Mesosternum angustum; coxæ intermediæ approximatæ:

(os liberum) . . . . . ATTAGENUS.

B. Mesosternum transversum; coxæ intermediæ distantes:
a. Mesosternum bifidum; os prosterno obtectum;
Labrum mandibulæque libera: (ligula dilatata) . TROGODERMA.
Labrum solum liberum;
Fossulæ antennales submarginales; corpus pubescens . CRYPTORHOPALUM.
Fossulæ antennales marginales; corpus squamatum . ANTHRENUS.
b. Mesosternum integrum;
Tibiæ anticæ tenues; corpus longe pilosum . . APSECTUS.
Tibiæ anticæ latiores, os obtegentes: corpus glabrum . ORPHILUS.

DERMESTES Linn.

a. Abdominis articulis tertio quartoque maris medio penicillatis.

1. D. marmoratus, oblongus, niger, pubescens, capite thoraceque fulvo-variegatis, hoc punctis tribus ad medium cinereis ornato, elytris cinereo-fulvoque variegatis, macula magna subhumerali oblonga (angulis prolongatis) cinerea; infra candidus, segmento abdomis ultimo lateribusque nigris, illo basi albo-maculato, pedibus nigris, femoribus annulo albo ornatis, antennis piceis. Long. ·47.
Say, Journ. Acad. Nat. Sc. 3, 197.
Nebraska and Texas. The largest of our species, and very distinct by the large subquadrate cinereous spot just behind the base of the elytra: the outer margin of the spot is prolonged along the side of the elytra, and extends on the humerus: the inner anterior angle is prolonged towards the suture, while the inner posterior angle is prolonged backwards; excluding the prolongation, this spot is about one half longer than wide, and the inner prolongation is small compared with the outer portion, which is one third the length of the elytra: in the next species the inner prolongation is large, so that the mark appears like an irregular subbasal fascia, and the spot itself is not longer than wide.
Erichson (Ins. Deutschl. 430, note) gives as synonyms D. caninus *Germ.*, and D. tesselatus *Herbst.* This view appears to me entirely unfounded. The true *marmoratus* Say, seems not to be known to the German entomologists. By inadvertence Erichson also quotes the Trans. Am. Phil. Society, for the original description of Say.

2. D. Mannerheimii, oblongus, niger, pubescens, capite thoraceque fulvo-variegatis, hoc punctis cinereis tribus ornato, elytris cinereo variegatis, fascia subbasali extus paulo dilatata cinerea, subtus candidus, abdominis lateribus segmentoque ultimo nigris, hoc basi albo-notato, pedibus nigris, femoribus annulo albo ornatis, antennis obscure ferrugineis. Long. ·31—·37.
Dermestes marmoratus Mannerheim, Bull. Mosc., 1843, 258.
San Diego and San Francisco, California. The small size given by Count Mannerheim, enables his specimens to be referred to this species: its characters are sufficiently pointed out above. The spot or fascia extends one fourth the length of the elytra.

3. D. fasciatus, oblongus, niger, pubescens, capite thoraceque fulvo variegatis, elytris lineolis transversis cinereis fasciaque pone basin lata irregulari ornatis; infra candidus, abdominis lateribus segmentoque ultimo nigris, hoc basi albo tripunctato; antennis pedibusque nigris, femoribus cinereo annulatis. Long. ·3—·35.
New Mexico, Mr. Fendler: also allied to the two preceding, but the fascia of the elytra is not connected with the base, is not dilated externally, and hardly even touches the scutel; the latter as in D. marmoratus and Mannerheimii is cinereous.

4. D. nubilus, oblongus, niger, pubescens, capite thoraceque cinereo fulvoque variegatis, elytris cinereo plus minusve variegatis, scutello densius pubscente; infra albidus, abdominis lateribus segmentoque ultimo nigris, hoc basi albo bipunctato, femoribus nigris albo annulatis, antennis obscure ferrugineis. Long. ·3—·35.
Say, New Ins. of Louisiana, collected by Joseph Barabino, (1832.)
Dermestes dissector Kirby, Fauna Bor. Am. 115.
Texas, collected by Lieut. Haldeman, and by the Boundary Commision; also

in Canada (Kirby). The general direction of the markings of the elytra is transverse, sometimes they are so numerous that the elytra appear dull cinereous, with a few transverse black lines.

5. D. murinus, oblongus niger, pubescens, capite thoraceque cinereo-fulvoque variegatis, elytris cinereo-variegatis, scutello densius pubescente, infra albidus, abdomine lateribus segmentoque ultimo nigris, hoc basi albo-bipunctato, antennis nigris. Long. ·3.

Linn. Faun. Suec. (synon. vid. Erichson, Ins. Deutschl. 429).

Middle and Southern States and Nebraska; probably imported. This species differs from the last by the color of the antennæ: the markings of the elytra are less disposed to become confluent.

6. D. sobrinus, oblongus, niger, subæqualiter fusco-pubescens, (sparsius in elytris); subtus albidus, abdomine maculis nigris quadruplici serie ornato, femoribus albo-annulatis, antennis obscure ferrugineis. Long. ·32.

One specimen, Texas, Mr. Haldeman. This has entirely the form of D. nubilus, but the uniform pubescence, and the four abdominal series of spots will enable it to be readily recognized: the last joint of the abdomen is white, with two lateral and two fainter internal black spots at the base, corresponding to the spots on the other segments.

7. D. talpinus, oblongus, niger, pubescens, capite thoraceque cinereo variegatis, pilis fulvis intermixtis, scutello fulvo pubescente, elytris lineolis angustis transversis cinereis variegatis; subtus albidus, abdominis lateribus segmentoque ultimo nigris, hoc basi albo bimaculato, antennis piceis apice dilutioribus, femoribus albo annulatis. Long. ·24—·32.

Mannerheim, Bull. Mosc. 1853, 257.

California and Oregon; abundant. The lines of the elytra are very narrow, and occasionally are varied with fulvous hairs: the color appears from the narrowness of the markings much darker than in our Eastern species.

8. D. rattus, oblongus magis elongatus, griseo-pubescens, (maculis denudatis variegatis) thorace minus subtiliter punctato, subtus albidus, abdomine griseo nebuloso, antennis nigris. Long. ·26.

One specimen, California, Mr. Child. This species is a little narrower than the preceding, and from the appearance of the hair of the upper surface looks as if well preserved specimens would be uniformly pubescent, as in the densely pubescent varieties of D. murinus. The specimen being a female, I am not certain that it belongs to this division, but have placed it near those to which it seems most closely allied. The hairs of the thorax appear slightly intermixed with fulvous, and the punctures are more distinct than usual. The pectus is white as usual, but the abdomen is of a dirty clouded white color, becoming white only at the middle of the base.

9. D. mucoreus, oblongus, magis elongatus, nigro-piceus, pubescens, thorace lateribus et apice, elytrisque versus basin densius pubescentibus, subtus candidus, segmentis abdominis gutta utrinque nigra notatis, (pedibus antennisque piceo-rufis). Long. ·23.

One male from New York. This specimen is evidently immature, but the white undersurface, marked only with the black lateral spots will enable it to be recognized: the last segment of the abdomen is white, having only the lateral spot each side at the base. The femora are not annulated. The appearance is that of a small D. vulpinus, but the sexual characters are those of the present group.

10. D. pulcher, oblongus, rufus, subtilius cinereo pubescens, elytris nigris humeris oblique rufis. Long. ·25.

Philadelphia, Mr. Newman, in a dead oak tree. A moderately robust species, uniformly but not densely pubescent, both above and beneath, and very remarkable by its color. The elytra in some lights show some very faint traces of striæ behind the middle. Five specimens were found.

11. D. lardarius, subcylindricus, niger, pubescens, elytris usque ad medium dense cinereo pubescentibus, macula utrinque basali punctisque utrinque tribus nigris notatis. Long. ·3—·32.

Linn. Fauna Suec. (v. Erichson Ins. Deutschl. 436); Kirby, Fauna Bor. Am. 115.

A common and destructive insect, which we owe to the other continent. The form of body is longer, more cylindrical, and less pointed than in any of the preceding species.

12. D. elongatus, elongatus, cylindricus, piceus, æqualiter fusco-pubescens, elytris obsolete striatis, antennis rufo-piceis. Long. ·35.

Georgia, rare. Still longer and narrower than D. lardarius, with the hairs uniformly, but not densely placed, and permitting the punctures to be readily seen. The elytra show traces of slightly impressed striæ along their whole length.

b. Abdominis articulo quarto maris medio penicellato.

13. D. vulpinus, oblongus, niger, cinereo-pubescens, capite thoracisque lateribus densius pubescentibus, elytris apice mucronatis, infra niveus, abdomine lateribus nigro maculato, segmento ultimo nigro maculis duabus albis notato, ano fulvo pubescente. Long. ·34.

Fabr. Spec. Ins. 1, 64, (1781), vide Er. Ins. Deutschl. 426. Oliv. Ins. 9, 8, tab. 1, fig. 6.

Dermestes maculatus DeGeer, Ins. 4, 223. (1774).

Var. Supra æqualiter dense cinereo-fusco pubescens.

Dermestes lupinus Erichson, Weigm. Archiv. (1843), 206. Mann. Bull. Mosc. (1843), 85.

New York, Nebraska, Texas, California. The variety is quite abundant in the two localities last mentioned. Erichson describes the last segment of the abdomen as having a broad black vitta; as, however, the tip is pubescent, and the lateral spots also large, it seems more natural to describe it as having two white spots at the base extending beyond the middle. By comparison with other species, it will be seen that this is the most common form of marking, and that in the present species, the spots are merely exaggerated beyond their usual size. The antennæ and feet are piceous, the bases of the thighs, especially of the posterior pair are covered with white pubescence.

ATTAGENUS Latr.

1. A. pellio, ovalis, niger, supra nigro-pubescens, thorace guttulis tribus ad basin, elytris gutta utrinque ad medium albo-pilosis, infra cinereo-pubescens, antennarum basi tarsisque fuscis. Long. ·2.

Stephens, Ill. Brit. Ent. (Mand.) 3, 126; Kirby, Fauna Bor. Am. 114.

Dermestes pellio Linn. Faun. Suec. (vide Er. Ins. Deutschl. 440).

A common European insect, occurring frequently in New England and Canada.

2. A. megatoma, ovalis niger, supra dense punctulatus, nigro-pubescens, antennarum basi pedibusque rufis, subtus fusco-pubescens. Long. ·15—·25.

Erichson, Ins. Deutschl. 441,

Dermestes megatoma Fabr. Syst. El. 1, 313.

Abundant in houses. Probably imported from Europe. The specimens of Say's species in Dr. Melsheimer's collection belong here, but Say's description seems rather to refer to the next species.

3. A. spurcus, ovalis minus convexus piceus, infra et supra fusco-pubescens, thorace confertim punctulato, pedibus antennisque rufis, his apice fuscis. Long. ·17.

? *Attagenus cylindricornis* Say, Journ. Acad. Nat. Sc. 5, 185.

One female, Santa Fe, New Mexico, Mr. Fendler. Less convex than the preceding, and easily known by the brown pubescence of the upper surface. The thorax is twice as wide as long, finely punctulate, not very convex, broadly bisinuate at base, with the posterior angles slightly produced.

Say's description is as follows: 'Body reddish brown, with very numerous

short, ferruginous, somewhat rigid, sericeous hairs: head blackish with an obscure rufous frontal spot; antennæ pale rufous, terminal joint dark brown; mouth rufous; thorax nearly as dark as the head; elytra paler than the thorax; beneath piceous black; feet pale rufous.'

4. A. dichrous, ovalis minus convexus, niger, minus dense supra longius pubescens, thorace parce punctulato, utrinque ad basin impresso, elytris, antennis pedibusque læte rufis. Long. ·16.

One male, New Mexico, Mr. Fendler. Differs from all the others known to me by the coarser and longer dark greyish hair of the upper surface; the last joint of the antennæ is as long as the others united, and is slightly sinuate internally towards the apex. The thorax is more than twice as wide as long, not very convex, shining and finely but not densely punctulate; the base is broadly bisinuate and impressed, the posterior angles are rounded.

A. cylindricus Kirby, Fauna Bor. Am. 113, tab. 7, fig. 3, is unknown to me; it was found near the Rocky Mountains, and is said to have the appearance of a Cryptophagus.

TROGODERMA Latr.

1. T. ornatum, subovale, nigrum, subtus griseo-pubescens, thorace convexo, confertim subtiliter punctulato, pilis cinereis fulvisque variegato, elytris subtiliter punctulatis, lineis undulatis ferrugineis, pilisque cinereis et fulvis subfasciatis, antennis tibiis tarsisque rufo-piceis vel fuscis. Long. ·14—·17.

Megatoma ornata Say, Journ. Acad. Nat. Sc. 5, 185.

One specimen from Texas, Mr. Lindheimer and others from New York. This species has precisely the form of the next, but is readily distinguished by the fine dense punctures of the thorax, and the finer punctures of the elytra. The pubescence of the thorax forms two yellow transverse lines, one near the tip, the other at the middle, and some basal white spots: that of the elytra, forms three narrow dentated lines and a basal, irregular spot; the anterior and medial lines are somewhat connected towards the suture. The club of the antennæ is elongated, composed of five points not very loosely articulated in the female, and is broad and serrate in the male.

2. T. inclusum, subovale, nigrum, thorace convexo, vix punctulato, pilis sparsis cinereis variegato, elytris minus subtiliter punctulatis fascia lata subbasali guttam utrinque nigram includente, lineisque duabus ad suturam connexis cinereis ornatis, antennis tarsisque rufo-piceis vel fuscis, subtus subtiliter nigro-pubescens. Long. ·17.

New York: I once found a considerable number in a trunk full of duplicate insects: the antennæ are as in the female of the last, in all my specimens.'

3. T. pallipes, subovale, nigrum, subtus griseo-pubescens, thorace convexo, parce punctulato, pilis cinereis adsperso, elytris minus subtiliter punctulatis, lineis undulatis furrugineis, pilisque cinereis et fulvis subfasciatis, antennis pedibusque testaceis, clava, femoribusque infuscatis. Long. ·14.

Ziegler, Proc. Acad. Nat. Sc. 2, 269.

One female, Georgia. This species is very closely allied to T. ornatum, but the less dense punctures of the thorax will enable it to be separated. The specimen described by Mr. Zeigler was evidently only recently transformed, and therefore had not yet attained its full color. The club of the antennæ is as in T. ornatum, whence it may be concluded, that the male will be found to have pectinate antennæ.

4. T. tarsale, elongato-ovale, postice paulo angustius, nigrum, thorace vix punctulato, pilis cinereis adsperso, elytris punctulatis, lineis ferrugineis undulatis variegatis, pilisque cinereis subfasciatis, antennis pedibusque piceo-rufis femoribus infuscatis. Long. ·19.

Melsheimer, Proc. Acad. Nat. Sc. 2, 116.

Middle States, not rare; frequently found in Zoological collections. This species is smaller and narrower than the preceding, and is slightly ovate in form.

the elytra being gradually narrowed from the base: in all those above described the body is regularly oval, beng equally obtuse at each end. The antennæ of the male are strongly pectinate, those of the female are terminated by a small four-jointed club.

5. T. p u s i l l u m, elongato-ovale, postice haud angustius, nigrum, thorace subtiliter punctulato, pilis cinereis marmorato, elytris punctulatis lineis undulatis ferrugineis, pilisque cinereis fulvisque marmoratis, antennis pedibusque piceo-rufis, femoribus infuscatis. Long. ·08.

Louisiana, given me by Mr. Guex. Considerably smaller than the preceding, more obtuse anteriorly, hardly narrowed posteriorly, and with the hairy spots of the elytra forming distinct transverse undulated lines. The antennæ of the male are strongly pectinate.

CRYPTORHOPALUM Guér.

1. C. b a l t e a t u m, ovale nigrum, cinereo-pubescens, thorace versus latera, elytrorum annulo humerali, fasciis duabus rectis apiceque densius pubescentibus, tarsis testaceis. Long. ·11.

San Diego, California. From the fasciate elytra, this species has the appearance of Trogoderma, but the antennæ are terminated by a very large two-jointed club, which is received in an excavation just within the lateral margin of the thorax.

2. C. t r i s t e, subovatum nigrum, subtiliter cinereo-pubescens, thorace sat dense subtiliter punctulato, elytris confertim punctulatis, antennarum basi, tibiis tarsisque piceis. Long. ·10—·13.

San Jose, California. Somewhat ovate in form, more obtuse behind than in front, but broadest about the base of the elytra. The hair is fine, and dark colored, although not sparse; the punctures of the thorax are not distinct, but those of the elytra are quite obvious.

Closely allied to this species must be Anthrenus a p i c a l i s Mann. Bull. Mosc. 1843, 258. It is also from California, and (by description) differs from the species here described, by the tip of the elytra, and the feet being reddish.

3. C. p i c i c o r n e, ovatum, nigrum, subtiliter nigro-pubescens, thorace subtiliter punctulato, elytris confertim punctulatis, antennis tarsisque piceis. Long. ·09.

Pennsylvania to Georgia. A little broader and somewhat less convex than the preceding, but very similar to it in characters; the pubescence appears also less dense. The base of the antennæ is sometimes testaceous; the tibiæ appear to be always black.

4. C. r u f i c o r n e, subovatum, nigrum, subtiliter parcius nigro-pubescens, thorace vix punctulato, elytris punctulatis, antennis tibiis tarsisque obscure rufis. Long. ·08.

Southern States. Easily distinguished by the less abundant pubescence, the almost smooth thorax, and the reddish brown antennæ.

5. C. h e m o r r h o i d a l e, subovatum, nigrum, subtiliter cinereo-pubescens, thorace vix punctulato, elytris punctulatis, apice late rufis et cinereo subbifasciatis, antennis tibiis tarsique rufo-piceis. Long. ·09.

Anthrenus hæmorrhoidalis Leconte, Ann. Lyc. 1, 170; tab. 11, fig. 4.

Middle and Southern States. In this and the preceding species, the middle of the base of the thorax is more suddenly produced than in C. picicorne, or C. triste. The apical spot of the elytra occupies nearly one third of the surface; the cinereous pubescence at its anterior portion and at the tip is more dense: occasionally on each elytron, near the middle of the spot, may be observed a fuscous dot.

6. C. f u s c u l u m, subovatum, nigrum, densius cinereo-pubescens, thorace subtiliter punctulato, elytris punctatis, (sæpe rufescentibus, macula communi basali triangulari picea,) antennis pedibusque rufis. Long. ·06—·08.

Colorado River, California. The dense pubescence, the larger punctures of

the elytra, and the pale color of the feet and antennæ will distinguish the species; the elytra of the small specimen are black, while of the larger one, they are reddish brown, with the base blackish, the dark color extending on the suture to the middle and not being well defined.

ANTHRENUS Fabr.

A. Antennæ 11-articulatæ, clava triarticulata.

1. A. thoracicus, breviter ovatus supra niger, thoracis lateribus, elytris fasciis tribus, guttaque apicali albosquamosis, anterioribus extrorsum confluentibus, maculam magnam formantibus, sutura, humerisque subtus fulvo-squamosis. Long. ·10—·14.

Melsheimer, Proc. Acad. Nat. Sc. 2, 117.

Middle and Southern States. Differs from A. scrophulariæ, by the large external elytral white spot, and from A. pimpinellæ by the orange colored suture. The antennæ and thighs are black; the tibiæ and tarsi brownish; the under surface is covered with white scales, portions of the pectus, and a lateral row of spots on the abdomen are black. The posterior of the three elytral fascia is rarely entire; the apical spot is very small. A. adspersus Herbst, (Käfer, 7, 332, tab. 115, fig. 7,) may be a depauperated specimen of this species, but a comparison will be necessary to determine the fact.

2. A. lepidus, breviter ovatus, supra niger, thoracis lateribus albo-squamosis, gutta nigra inclusa, elytris fasciis tribus angustis suturaque albo-squamosis, macula antica suturali aureo-squamosa ornatis, basi parce albo-squamosis. Long. ·11.

San Diego, California: the fasciæ at their origin on the suture run obliquely backwards. The under surface is marked and colored as in the preceding.

3. A. varius, ovatus, niger, supra luteo-squamosus, thoracis basi utrinque et ante scutellum, elytrorumque fasciis tribus undatis albidis, infra albidus, antennis pedibusque nigris. Long. ·08—·11.

Fabr. Syst. El. 1, 108. vide Er. Ins. Deutschl. 445.

Anthrenus tricolor Herbst, Ins. 7, 333; tab. 115, fig. 8.

Anthrenus destructor Mels. Proc. Acad. Nat. Sc. 2, 116.

Abundant in spring, on flowers, especially on those of the Peony; probably imported from Europe, but now found even in California; the larva is very njurious to zoological collections. The antennæ are entirely black, the club narrower than in the preceding species, oval, with the three joints about equal in size. The white scales of the under surface of the body are mixed towards the sides and tip of the abdomen with yellow, the first segment of the abdomen is entirely covered with scales.

4. A. flavipes, breviter ovatus, niger, supra luteo-squamosus, fronte thoracis lateribus (macula fulva inclusa), elytrorum guttis rotundatis suturaque antice albo-squamosis, infra albo-squamosus, antennis pedibusque rufo-testaceis. Long. ·12.

One specimen, New York, Mr. Calverley. The club of the antennæ is broad, round and compressed; the first joint of it is very small, and the second only half as large as the last joint. The spots of the elytra seem inclined to form three fasciæ, and there is, besides, one at the middle of the base of each elytron. The form of the body is that of A. thoracicus, and as in that species the first joint of the abdomen has a denuded black line each side behind the coxa and the white scales are mixed with yellow towards the sides of the abdomen.

B. Antennæ 8-articulatæ, clava biarticulata.

6. A. castaneæ, ovalis minus convexus, niger, supra albo-conspersus, thorace lateribus subangulatis, elytris sæpissime fuscis, fasciis tribus basique densius squamosis, antennis pedibusque plus minusve testaceis. Long. ·06—·08.

Melsheimer, Proc. Acad. Nat. Sc. 2, 116.

Abundant in the Middle and Southern States, especially upon the flowers of

Castanea pumila. This species seems to be similar to A. museorum; but I cannot discover any sexual differences in a large number of specimens examined. The antennæ are sometimes dark-colored towards the extremity; the feet also vary in color, the thighs being usually darker than the tibiæ and tarsi: the elytra are generally uniform testaceous brown, sometimes the margin and suture are dark fuscous.

APSECTUS Lec.

Caput prosterno receptum; oculi magni, ocellus frontalis; mesosternum transversum haud emarginatum; antennæ tenues, clava 3-articulata, scrobiculis male definitis receptæ; pedes tenues, tibiis linearibus, antici modice distantes.

A curious little insect, covered with long erect hair, and presenting the appearance of the European Trinodes; the antennæ are precisely as in that genus; the prosternum, however, is truncate behind, and the anterior coxæ are moderately separated; the mesosternum is short, transverse and rounded anteriorly, while in Trinodes it is cleft as in Anthrenus, Trogoderma, &c. The legs are slender, the tibiæ not dilated; the joints of the tarsi diminish in length from the first to the fourth, the fifth is about equal to the first. In all other characters it agree with Trinodes.

1. A. hispidus, ovalis, modice convexus, niger nitidus pilis longis erectis nigro-cinereis vestitus, thoracis lateribus rectis submarginatis, elytris parce punctatis, antennis piceis basi pedibusque flavis. Long. ·05—·8.

Syncalypta hispida Melsheimer, Proc. Acad. Nat. Sc. 2, 117.

Middle and Southern States, on leaves, not abundant. A specimen kindly given me by Prof. Haldeman was hatched from a protuberance on the stem of Rhus radicans, but as some small Hymenoptera emerged from other similar excrescences, I think that the relation of the present genus to them is very doubtful.

The last joint of the antennæ of the male is elongated, so as to be nearly equal to the others united.

Varies in color, having the head, thorax and margin of the elytra occasionally yellowish brown.

ORPHILUS Er.

1. O. ater, subovatus, antice subacutus, minus convexus, ater, subglaber, thorace subtilius, elytris subrugose punctatis, his versus suturam longitudinaliter impressis. Long. ·10—·13.

Erichson, Ins. Deutschl. 463.

Middle and Southern States, on flowers. In comparison with the European O. glabratus, Erichson observes, that this one is one half smaller, less shining, with the thorax more convex and more finely punctured, and with the elytra more thickly punctured, and somewhat rugous.

Synopsis of the BYRRHIDÆ *of the United States,*

By JOHN L. LE CONTE, M.D.

NOSODENDRON Latr.

1. N. unicolor, rotundatum nigrum subnitidum, sat dense punctatum brevissime parce pubescens, antennis piceis. Long. ·2—·23.

Say, Long's Expedition to Sources of St. Peter's River, 2, 274.

Middle, Southern and Western States; rare.

SYNCALYPTA Stephens.

1. S. strigosa, subglobosa nigra (squamulosa?) setis brevibus erectis hispida, capite thoraceque subtilius punctatis, elytris apice fere acuminatis, striis minus profundis, subpunctatis, suturali pone medium duabusque submarginalibus exaratis, pedibus rufo-piceis. Long. ·10.

Simplocaria strigosa Mels. Proc. Acad. Nat. Sc. 2, 118.

The original type of this species, said to have come from Georgia, was kindly given me by Dr. Melsheimer. When it came into my possession, it was covered with an incrustation like mud, which induced Dr. Schaum and myself to consider it formerly as allied to Georyssus. By softening and cleaning the specimen, it was prepared for examination, and I then found all its characters to be of the present genus. The br stles were mostly gone, but a few remained about the head and thorax, indicating them to be short and yellowish white. A few small white scales remain on the under surface, but all vestige of such a covering on the upper surface is removed. I perceive no characters by which it can be separated from the European S. paleata Er. (Ins. Deutschl. 470,) although a comparison of specimens is necessary before it can be placed as synonymous with that species.

2. S. echinata, subrotundata, utrinque paulo angustata, modice convexa, nigra parce fusco-squamulosa, setis longis clavatis nigris hispida, capite thoraceque subtiliter punctatis, elytrorum striis tenuibus punctulatis, suturali ad apicem, marginalique exaratis. Long. ·10.

Le Conte, Agassiz' Lake Superior, 224.

One specimen found at Eagle Harbor, Lake Superior.

BYRRHUS Linn.

(* Alati; tarsorum articulus tertius haud lobatus.)

1. B. Kirbyi, ovatus, convexus, niger, pubescens, thorace vittis quatuor atro-holosericeis, (externis postice furcatis), elytris vittis utrinque tribus postice abbreviatis, maculaque transversa ad dodrantem atro-holosericeis; dorso figura communi valde transversa sinuata argenteo-pubescente interrupta ornatis: antennarum articulo ultimo ovali subtruncato. Long. ·31.

Byrrhus picipes‖ Kirby, Fauna Bor. Am. 116; Steffahny, Germ. Zeitschr. 4, 24.

Lake Superior. Differs from the following species by its smaller size, and by the elytra being broader and more obtuse posteriorly, whereby the body assumes an ovate form, not seen in the allied species. The markings are very similar to the next species, but the posterior transverse black spot extending from near the margin to the middle of each elytron is not seen in B. americanus. The small silvery spots forming the transverse sinuated figure are frequently not apparent. I have changed the name given by Mr. Kirby, as it is preoccupied by a European species.

2. B. americanus, ovalis, convexus, antice subacutus, niger pubescens, thorace minus distincte vittato, elytris vittis tribus atro-holosericeis interruptis, guttisque cinereis figuram communem transversam sinuatam formantibus, alterisque utrinque tribus posticis ornatis: antennarum articulo ultimo rotundato, palpis maxillaribus articulo ultimo ovali truncato. Long. ·4.

Le Conte, Agassiz' Lake Superior, 224.

Niagara, Newfoundland and Lake Superior, not rare. The three cinereous spots behind the transverse figure are placed in a transverse line, about one fourth from the apex.

3. B. cyclophorus, ovalis, convexus, antice subacutus, niger pubescens, thorace subvittato, elytris vittis tribus atro-holosericeis interruptis, guttisque cinereis figuram communem sinuatam formantibus; antennarum articulo ultimo rotundato, palpis maxillaribus articulo ultimo ovali, subtruncato; pedibus rufo-piceis. Long. ·27.

Kirby, Fauna Bor. Am. 117; Steffahny, Germ. Zeitchr. 4, 24; Mannerheim, Bull. Mosc. 1852, 341.

Lake Superior. Entirely similar in form to the last species, but only half as large, and with the last joint of the palpi more oval and less truncate. The figure on the elytra is of the same form, but less transverse, the length included by it on the suture being about one third of the elytra. The outer black vitta of the elytra is not obvious, being represented by two or three small spots.

4. B. geminatus, ovalis, antice subacutus convexus, niger, pubescens,

thorace subvittato, elytris vittis tribus atro-holosericeis, figuraque communi sinuata, postice duplicata et rotundata ornatis; antennarum articulo ultimo rotundato. Long. ·33.

Lake Superior, one specimen. This species is also similar in form to the two preceding, but the figure on the elytra instead of being truncate posteriorly, is rounded, and double, so as to form at the posterior part of the usual figure a lunate figure, concave anteriorly. The palpi unfortunately cannot be seen.

3. B. eximius, ovalis, utrinque subacutus, convexus, niger, olivaceo-pubescens, thorace cinereo variegato, elytris atro-cinereoque subtesselatis, figura transversa communi sinuata postice duplicata, maculaque suturali maiore ad medium ornatis, tarsis antennisque rufo-piceis, his articulo ultimo subacuminato. Long. ·22.

Le Conte, Agassiz' Lake Superior, 224.

One specimen, from the Northern shore of Lake Superior. The larger sutural cinereous spot at the anterior margin of the dorsal figure will enable this beautiful species to be readily recognized. The palpi cannot be seen.

6. B. murinus, breviter ovatus, convexus, niger, pubescens, et breviter setosus, elytris nigro-vittatis, vittis subelevatis, punctis cinereis figuram communem transversam postice duplicatam ornatis; antennarum articulo ultimo rotundato, palpis maxillaribus articulo ultimo ovato, truncato. Long. ·17—·2.

Fabr. Syst. El. 1, 104. Steffahny, Germ. Zeitschr. 4, 24.

Byrrhus undatus Melsheimer, Proc. Acad. Nat. Sc. 2, 117.

Byrrhus glabellus Melsheimer, Proc. Acad. Nat. Sc. 2, 118. (specimen deteritum.)

Pennsylvania, rare: the American synonyms were unnecessary, as no difference has yet been pointed out between native and European specimens. Competent European entomologists have pronounced them identical, and their opinion should be received, until some tangible character can be found for their separation. The European synonyms are omitted; they may be found in Erichson, Ins. Deutschl. (p. 488).

7. B. concolor Kirby, Fauna Bor. Am. 117. Unknown to me.

Cytilus Er.

1. C. varius, subovatus, antice subacutus, convexus, æneus, vel viridi-æneus, pubescens, elytris striatis, interstitiis alternis virescentibus subelevatis, nigro-tessellatis. Long. ·2.

Erichson, Ins. Deutschl. 490.

Byrrhus varius Fabr. Syst. El. 1, 105; Kirby, Fauna Bor. Am. 118; Steffahny, Germ. Zeitschr. 4, 28.

Byrrhus trivittatus Melsheimer, Proc. Acad. Nat. Sc. 2, 117.

Very abundant through Northern New York, in Maine, and at Lake Superior. The following variations in color may be observed:

a. Thorax with a large patch of golden hair at the middle of the base; scutel covered with grayish hair.

b. Thorax and scutel as above; margin of the elytra and feet reddish-brown.

c. Golden hair of the thorax and gray hair of the scutellum less conspicuous; elytra uniformly dull bronze color, with the alternate interstitial spaces tesselate with black.

Var. *a* is most abundant, and is the one named by Dr. Melsheimer; to var. *c* may probably be referred Byrrhus alternatus *Say*, Journ. Acad. Nat. Sc. 5, 186.

Pedilophorus Steffahny. (*Morychus* Er.)

1. P. acuminatus, apterus longiusculus, ovalis, antice subacutus, convexus supra æneus, nitidus, subtiliter cinereo-pubescens, thorace subtiliter, elytris distinctius punctatis, subtus nigro-piceus, punctatus, griseo-pubescens, tarsis articulo 3io longe lobato. Long. ·18.

Morychus acuminatus Mannerheim, Bull. Mosc. 1852, 341.

Oregon, Col. McCall; (Sitka, Mannerheim.) The fact that the generic name ceases to be applicable to certain species now admitted into the genus, is hardly sufficient to warrant us in substituting the name proposed by Erichson, for that under which this group was first established.

SIMPLOCARIA Steph.

1. S. tessellata, elongato-ovalis, nigro-ænea, nitida, convexa, utrinque subacuta, parce cinereo-pubescens, thorace subtiliter punctulato, elytris striis sat profundis, apice obsoletis, suturali integra, interstitiis parum convexis, obsolete punctulatis, maculis cinereo-pubescentibus subtessellatis, pedibus piceis, tarsis pallidioribus. Long. ·13.

Byrrhus tessellatus Lec. Agassiz' Lake Superior, 224.

One specimen, found on the Northern shore of Lake Superior. The reference of this species to Byrrhus, by me, is another instance of the confusion resulting from the description of *new species* of insects of various groups, before the groups themselves have been submitted to careful study.

2. S. nitida Motsch. Bull. Mosc. 1845, 2, 362; Mannh. ibid. 1852, 342. Russian America; unknown to me.

AMPHICYRTA Er.

1. A. chrysomelina, aptera longius ovata, antice angustior, piceo-ænea, nitida, convexa, dense subtiliter punctulata, tarsis piceis, tibiis anticis extrorsum obtuse angulatis. Long. ·35.

Erichson, (per Steffahny) Germ. Zeitschr. 4, 40.

Oregon, collected by the late J. K. Townsend, and given me by Mr. Willcox. Larger and narrower than the following species.

2. A. dentipes, aptera, ovata, antice angustior, piceo-ænea, nitida, fere gibba, dense punctulata, subtilius in thorace, antennis palpis, pedibusque rufo-piceis, tibiis anticis extrorsum subacute angulatis. Long. ·25—·28.

Erichson, (per Steffahny) Germ. Zeitschr. 5, 40.

Eucyphus hybosoroides Mannerheim, Bull. Mosc. 1843, (teste Mann. ibid. 1852, 342.)

Abundant at San Jose, California, under stones, in March; found also occasionally at San Francisco. The synonym cited from Count Mannerheim, although suspected by me several years ago, and mentioned in my correspondence with scientific friends, is founded upon a description so very inaccurate, from typographical errors, that the admission of the author himself was necessary to establish it.

3. A. simplicipes Mannh. Bull. Mosc. 1852, 342. Russian America; unknown to me.

LIMNICHUS Latr.

1. L. olivaceus, ovalis, convexus, nigro-æneus, pube densa olivacea cinereaque sericeus, confertim sat grosse punctatus, thorace subcanaliculato lateribus rectis, basi media longius lobata, antennis pedibusque nigris, prosterno profunde sulcato. Long. ·10.

Illinois, Mr. Willcox. This species closely resembles the next, but is larger, the form is more elongated, the punctures are larger and somewhat less dense.

2. L. punctatus, ovalis convexus, æneo-niger, pube densa olivacea sericeus, in elytris cinereo vix variegatus, punctatissimus, thorace subcanaliculato, lateribus fere rectis, basi media longius lobata, antennis pedibusque nigris prosterno profunde sulcato. Long. ·07—·08.

Pennsylvania, June, abundant.

3. L. obscurus, ovalis, convexus, æneo-niger, pube olivacea cinereaque subsericeus, sat dense punctatus, thorace subcanaliculato, lateribus rectis, basi media latius lobata, prosterno profunde sulcato, antennis pedibusque nigris, Long. ·10.

New York. Less densely and more finely punctured than those above described, the punctures being more distant from each other than their own diameters, except on the head, which is confluently punctured; the punctures of the thorax are smaller than those of the elytra, and the lobe of the base is only slightly prolonged. The body is somewhat acuminate at each end.

4. L. ater, ovalis, utrinque attenuatus, convexus, niger nitidus, cinereo-pubescens, thorace subcanaliculato subtiliter punctato, basi longius lobato, elytris sat dense punctatis, punctis ad suturam et apicem subtilioribus, antennis pedibusque nigris, prosterno sulcato. Long. ·08.

Mississippi, Dr. Schaum. Distinguished from L. obscurus by its blacker color, and by the body being more sharply acuminate at each end; the thorax is longer, and the basal lobe is more obvious.

5. L. nitidulus, ovalis utrinque attenuatus, convexus niger nitidus, parce cinereo pubescens, thorace subcanaliculato, subtiliter punctulato, basi modice lobato, elytris minus dense punctatis, punctis ad suturam apicem et marginem subtilioribus, antennis pedibusque nigris prosterno profunde sulcato. Long. ·07.

Georgia, in Habersham County. Of the same form as L. ater, but more shining, with the punctures of the elytra larger, less dense, and becoming smaller towards the edges.

6. L. ovatus, breviusculus ovatus, utrinque attenuatus, convexus, niger nitidus, densius cinereo-pubescens, thorace basi vix lobato, vix punctulato, elytris minus distincte punctulatis, antennis pedibusque piceo-rufis, prosterno profunde sulcato. Long. ·06.

Georgia; found also in Louisiana, according to Mr. Motschulsky. Smaller and much broader than any of the preceding species. The punctures of the elytra are not obvious, and those of the thorax, although dense, are so fine as to be hardly visible.

PHYSEMUS ‡ Motsch.

Oculi, labrum, et mandibulæ libera; antennæ tenues clavatæ, clava in fovea superna ad angulo thoracis antico recepta; tarsi liberi.

Mr. Motschulsky informs me that the insect here described is congeneric with the Russian Physemus velutinus mentioned by him in his catalogue of the Hydrocanthares of Russia, (p. 12,) and I have accordingly adopted the name proposed by him. The insect is of small size, broadly ovate in form, subacute posteriorly. The antennæ are longer than the head, the first four joints are thick, the second being a little shorter, the fifth and sixth are somewhat less thick, the seventh slender, as long as the sixth: the club is oval, not much broader than the first joint, and apparently solid, though with a high magnifying power, it appears indistinctly articulated. The most remarkable character is that this club is received in a deep hole, each side of the thorax, on the upper surface, just behind the anterior angle. The feet are slender, and formed as in Linnichus.

1. P. minutus, breviter ovatus, utrinque attenuatus, convexus niger, densissime subtiliter punctulatus, cinereo-pubescens, prosterno haud sulcato, pedibusque rufo-piceis. Long. ·03.

Colerado river, California. Has the habits of Linnichus, and appears when water is thrown on the banks.

Descriptions of New Birds collected between Albuquerque, N. M., and San Francisco, California, during the Winter of 1853–54, *by* DR. C. B. R. KENNERLY *and* H. B. MÖLLHAUSEN, *naturalists attached to the survey of the Pacific R. R. Route, under* LT. A. W. WHIPPLE.

BY S. F. BAIRD.

CYPSELUS MELANOLEUCUS, Baird.

Above dark sooty brown all over, except a white band on the wing, formed by the tips of the secondary quills, and a white patch on the side of the body opposite the rump, and extending round so as to be separated on the rump by a space of about one third of an inch. Beneath white, except the under surface of the wings and tail, the sides of the body, crissum and under wing and tail coverts, which are glossy soot black, leaving but a narrow interval of white down the breast and belly. There may be a narrow black, pectoral collar. There is a narrow light edging to the outer primary quill.

Total length 5 inches and 8-10ths, wing 5 4-10ths, tail 2 8-10ths, tarsus 3-10ths. (No. 169.) Camp 123, west of San Francisco Mountains.

CULICIVORA PLUMBEA, Baird.

Above bluish grey; beneath white. Front uniform with the crown; eyelids white, and over the eye a narrow greyish white stripe, within which is another of bluish black, partially concealed by the feathers. Quills all edged with lighter. Tail feathers all black; the entire outer webs and tips of the two exterior white, the third narrowly margined and tipped with the same. Bill short. Tail considerably rounded.

Total length 4 inches and 4-10ths, wing 1 9-10ths, tail 2, bill from front 4-10ths, tarsus 6-10ths.

Differs from *C. cærulea* in shorter bill and more rounded tail, the outer feathers of which are not white but nearly black. The black frontlet is also wanting. Differs from *C. atricapilla* in absence of black on the top of the head, this being replaced by a dark stripe on the side. Mr. Lawrence describes the *C. atricapilla* as having the outer web only of the lateral tail feathers white, but Bonaparte states the whole feathers to be white.

Bill-Williams' Fork, Feb. 1854.

PSALTRIA PLUMBEA, Baird.

Upper parts bluish grey, including the crown; beneath dirty white or brownish white; cheeks, throat, and forehead tinged with light brown; outer margins of all the quills and tail feathers like the back, but brighter (excepting on the two outer primaries.) Bill and feet black.

Length 4¼ inches, wing 2 ½-10ths, tail 2 4½-10ths, tarsus 7-10ths.

Compared with specimens from California of *P. minima*, this species differs in having the top of the head uniform with the back; the whole dimensions larger, and the bill smaller and more delicate.

Hab. Little Colorado, N. M.

CYANOCITTA MACROLOPHA, Baird.

General appearance that of *C. stelleri*. Tail rounded. Head with a very long pointed crest, the longest feathers about twice the length of the bill. Head and upper part of the neck all round, clear sooty black; crest glossy, greenish black. Whole back and scapulars and thighs brownish ash, with a slight gloss of green. Rump, upper tailcoverts, sides and whole under parts light cobalt blue. Tail and exposed surfaces of the secondaries and tertiaries ultramarine blue; outer webs of primaries more like the rump. Tail feathers, tertiaries and outer webs of secondaries distinctly barred with black. The short elongated pointed exterior feathers of the forehead streaked with opaque greenish white, turning to greenish on those more posterior; over the eye on the eyelids, a row of silky white feathers.

Length 12½ inches, wing 6, tail 5½.

This bird is figured in Fauna Boreali Americana, Birds pl. 54.

Differs from *C. stelleri* in longer and narrower crest, the deeper black of the head; the feathers on the side of the forehead streaked with white, not green; the white feathers over the eye; more grey on the feathers of the chin at base; narrower bill, &c.

100 miles west of Albuquerque, N. M.

CARPODACUS CASSINII, Baird.

Bill very stout and much elongated, straight or even concave for four-fifths its length, then gently curved. Wings lengthened; 2d and 3d quills nearly equal and longest. 1st intermediate between the 3d and 4th. Tail moderately broad; quite deeply emarginate; inner feathers nearly the one fourth of an inch shorter than the outer.

Male. Whole upper part of the head from the bill to the neck of a rich deep crimson; sides of the head below the eyes, chin, throat and upper part of the breast pale purplish. Feathers on the lower part of the hind neck, back, and scapulars gray, and with a dark brown central streak, and glossed all over with purplish. Breast, abdomen, belly, and crissum uniform white, anteriorly tinged with purplish gray, laterally streaked with brown; under tail coverts white, similarly streaked. Lower part of the back and rump faintly purplish. Quills and rectrices brown; all margined with dull purplish. Secondary and tertiary quills and primary coverts more broadly margined. Lesser coverts strongly glossed with purple.

The female is larger than that of *C. obscurus*; wings longer; belly immaculate, streaked only on the sides.

Male. Total length 6¼ inches, wing 3 7-12ths, tail 2 10-12ths, tarsus 7 ½-12ths, bill on ridge 6 ½-12ths.

This very strongly marked species may be distinguished by the very long and nearly straight bill which is larger than in any other N. American species. The crimson of the head extends to the cervix as in *C. purpureus*; the back is conspicuously streaked; the lower parts white and streaked only laterally; the reverse being the case in *C. familiaris*. It resembles *C. purpureus* most, but is larger, bill, wings and tail longer, with less purple on the breast, &c.

Camp 104, Pueblo Creek, N. M., and 75 miles west of Albuquerque.

This species is named in honor of Mr. John Cassin, of the Academy of Natural Sciences of Philadelphia.

ZONOTRICHIA FALLAX, Baird.

This species bears a very close resemblance to *Z. melodia*, of which it is the western representative. Compared with *Z. melodia* the bill is considerably smaller and the tail longer. The plumage above is more ashy, the streaks on the back not so distinct, the spots are more crowded about the breast, but fewer on the sides; their color more uniformly chesnut brown.

Length 6¼ inches, wing 2 8-10ths, tail 3.

Pueblo creek, New Mexico.

PIPILO MESOLEUCUS, Baird.

Bill considerably curved and inflexed at edges. Tarsi short, outer claw reaching a little beyond the base of the middle claw. Above nearly uniform dull olive brown, except a patch of dark chestnut on the top of the head; chin, throat and upper part of the breast pale reddish white, streaked on the border of the area with brown; and below this there is a central large spot, formed by the adjacent brown inner vanes of several feathers. This spot is below the collar of smaller ones just described. Middle of the breast and abdomen white. Lower part of the belly, crissum, and under tail coverts light ferruginous. Sides like the back with a slight tinge of rufous. Wings and tail like the back, the latter with rusty tips.

Total length 8¼ inches, wing 3 11-12ths, tail 4 7-12ths, tarsus 5-12ths.

Differs from *P. fusca*, (which appears to be confined to the Pacific coast,) in a more distinct patch of chestnut on the crown, not merely tinged with this color; lighter throat, the rusty color extending further down, as do the attend-

ant spots, and below these again, a large dark spot partially covered by the feathers, and not observed in specimens of *P. fusca*. The middle of the breast and abdomen clear white, the rusty of crissum extending further on the belly. The bill is more rounded and shorter, the tarsus shorter, and the outer claw extends further on the middle claw.

Pipilo aberti is easily distinguished by the black lores and chin, less distinct spots on the throat, and nearly uniform under parts.

A specimen collected by Mr. Clarke, of the Mexican Boundary Survey, at the Copper Mines, appears to belong to this species. It has unfortunately lost its tail. The chestnut patch is paler. A smaller race of the same was collected by Lieut. Couch at Santa Catarina in Mexico.

CENTURUS UROPYGIALIS, Baird.

Head and neck all round, and the lower parts of the body brownish ash, darkest above; a broad frontal band of dull yellowish white, (not golden.) A small quadrate patch directly on the vertex, of deep red; rest of the upper parts banded transversely with black and white, even on the rump and upper tail coverts. Middle of the belly yellow, sides of the body along crissum, and lower tail coverts banded with black and white, like the back. Primaries black, white at the base; secondaries with round spots on the outer web; two central tail feathers black on the outer vane with a narrow stripe of white at the base, running for half the length of the feather near the shaft, and tapering to a point; inner vane banded alternately with black and white; two exterior feathers on each side banded on both vanes; intermediate ones entirely black.

Total length 9½ inches, extent 16, wing 5, tails 4 1-10th.

Differs from *C. carolinus* in yellow belly, resembles it in character of transverse bands above, and markings on the tails. *C. flaviventris* has the middle tail feathers entirely black, and the rump and upper coverts white. *C. tricolor* has the middle of belly red. *C. uropygialis* also lacks the golden front and occiput of this and other species.

Bill-Williams Fork of Colorado, New Mexico.

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al of the Franklin Institute for March, 1854.

March 14th.

d States Exploring Expedition under Capt. Wilkes; Vol. 15, 4to. The hical distribution of Animals and Plants. By Charles Pickering, M. D. e Author.
t of Commander W. F. Lynch, in relation to his mission to the Coast of From W. Parker Foulke.
eston Medical Journal and Review for March, 1854. From the Editors.
ls of Science for March, 1854. From the Editors.
ollowing were presented by the Royal Netherland Institute of Science,

ag over het Cement, von G. Vrolik.
ag over het Kunst Cement.
ndeling over eene nieuwe wijze om afstanden te meten door Hendrick

de Gewassen in Nederland geteeld, door J. Kops.
rzoekingen aangaande het zewart in de Melisbrooden, door C. M. Van A. Van Beck.
agen over de Lepra te Surinam.
ag van den Staat van Ziekte of het etablisement voor Lepreuzen door Dr. bein.
agen van den H. H. G. Vrolik, A. Numan, H. C. Van Hall en A. Brantz de Zaaijing van aardappelen.
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ouwingen over den Aard en den Werkkring van het k. Nederland. In-

bepaling omtrent Nederlandsche Maten en gewigten.

April 4th.

ires de la Société des Sciences Naturelles de Cherbourg. 1er Vol. Nos. vo. 1853. From the Society.
ire sur l'introduction et la floraison a Cherbourg d'une espéce peu con- Lin de la Nouvelle-Zelande, et revue des Plantes confondues sous le nom mium tenax. Par M. Auguste le Jolis. From the Author.
ues reflexions sur l'etude de la Botanique, et details sur le mode de re- ion des Algues zoosporées. Par. M. Jolis. From the author.
vations sur les Ulex des environs de Cherbourg. Par M. Jolis. From e.

Further notes on Cereus giganteus of South-eastern California. By Dr. G Engelmann. From the Author.

Vital Statistics of St. Louis for the year 1851. By Wm. McPheeters, M. From Dr. Engelmann.

5th, 6th, 7th, 8th and 9th Geological Reports of the State of Tennessee. Gerard Troost, M. D. 8vo. From Dr. J. Berrian Lindsley.

Researches upon Nemerteans and Planarians. By Charles Girard. 4to. Fr the Author.

Aboriginal Monuments of the State of New York. By G. G. Squier. (Fr the Smithsonian Contributions to Knowledge.) 4to. From the Institution.

Types of Mankind. By J. C. Nott, M. D., and George R. Gliddon. Impe 8vo. From the Authors.

Virginia Medical and Surgical Journal for March, 1854. From the Editor

Comptes Rendus, tome 38, Nos. 3—8. From Dr. Wilson.

London Athenæum for February, 1854. From the same.

Zeitschrift für Malakozoologie. Von Menké und Pfeiffer. 1853, Nos. 8— From the same.

Odontographie. Vergleichende Darstellung des Zahnsystemes der leben und fossilen Wirbelthiere. Von C. G. Giebel. 4 lief. From the same.

April 11th.

Portraits of Eminent Americans now living, with biographical and histor memoirs of their lives and actions. By J. Livingston. 8vo. From G. W. C penter, Esq.

Annals of Science for April, 1854. From the Editors.

Die Schwimmpolypen oder Siphonophoren von Messina beschreiben von All Kölliker. Folio. From Dr. Wilson.

Journal of the Franklin Institute for April, 1854. From the same.

DONATIONS TO MUSEUM

In May and June, 1854.

May 9th.

Fruit of Bertholettia excelsa. From Dr. G. Emerson.

Talpa europœa, and Arvicola terrestris, from Europe. From the Prince Wied.

May 16th.

An Indian Cranium, fragment of an upper jaw with teeth, and several ot fragments of human bones, thickly encrusted with carbonate of lime; fro cave (in which they were found with numerous other human crania—300 state embedded in limestone) in Vallecita, Calaveras Co., California. The prop of Dr. W. H. Housten, of Wheeling, Va., but deposited by Mr. Chas. Ellet, through Dr. Chas. D. Meigs.

Cambarus ———, from the prairies of Illinois.

Crystal of Blende, from Niagara Falls; and Asphaltite, from Chicago. P sented by Dr. Leidy.

Specimen of native Copper, from Lake Superior. Presented by Dr. W. Tingley.

Very fine specimen of Sulphate of Lead, from the Wheatley Mine, Che Co., Pa. From Mr. Chas. M. Wheatley.

Fragment of a fossil lower jaw of a young animal of Platygonus? Le Co from Augusta Co., Va. Presented by Dr. Le Conte.

Crystalline Slag. Presented by Dr. Rand.

May 23d.

Specimens of Crystalline Slag. From Theodore D. Rand, Esq.

Lychee Nat. China. Presented by A. Robeson, Esq.

Yellow Apatite, from Hurdtown, N. J. From Mr. G. O. Seward, through Dr. Fisher.

Cranium of Procyon lotor. From Dr. W. D. Hartmann.

June 6th.

The following Reptiles, collected by Dr. Woodhouse in the Creek Boundary Survey in 1849, under Capt. Sitgreaves, and in 1851 under Capt. Woodruff; those of Texas and New Mexico in 1850, on the Zuni Expedition under Capt. Sitgreaves:

Saurians.—Holbrookia maculata, B. and G., Cherokee Country; Cnemidophorus gularis, B. and G., Texas; Agama collaris, Say, Creek Boundary; Phrynosoma cornutum, Hall., Creek Boundary; Phrynosoma planiceps, Hall., Western Texas; Phrynosoma modestum, G., New Mexico; Phrynosoma orbiculare, Weig., New Mexico; Sceloporus bi-seriatus, Hall., New Mexico.

Ophidians.—Psammophis flavigularis, Hall., Creek Territory; Leptophis aestiva, Linn., Texas; Pityophis affinis, Hall., New Mexico; Calamaria elapsoides, Holb., Creek Boundary; Heterodon nasicus, B. and G., Santa Fé; Ophibolus ventralis, Linn., Prairies of Verdigris River; Crotalus Le Contei, Hall., New Mexico.

Batrachians.—Ambystoma nebulosum, Hall., New Mexico.

The above presented by Dr. Woodhouse, being duplicates of most of the originals in the Museum of the Smithsonian Institution.

Two large Polypori, from West Indies. From Dr. Goddard.

Acicular Crystal of Sulphate of Lime, from Mammoth Cave, Ky. From Dr. E. Lang.

Felspar with Phosphate of Lime, from Wissahicon. From Mr. I. Lea.

Twenty-three specimens Minerals and Fossils. Presented by J. Yeates Conyngham, of Lancaster Co., Pa., through Dr. F. West.

June 13th.

Three Vertebræ of a species of Crocodile from the Green Sand of New Jersey. From Prof. S. S. Haldeman.

Two specimens of Histerocarpus ———, with the Uterus of the same; from California. Presented by Dr. W. P. Gibbons.

Fruit of Bertholettia excelsa. Presented by Dr. Ruschenberger.

June 20th.

Twelve specimens of Fossils, from San Pedro, California; Shark's Tooth, from Santa Barbara, California. Presented by Dr. Heermann.

Beautifully mounted Skeleton of a Setter Dog. Presented by Mr. John Lambert.

Ophidium marginatum, from Delaware Bay. Presented by Mr. Hamilton, through Mr. S. G. Morton.

DONATIONS TO LIBRARY

In May and June, 1854.

May 9th.

Journal of the Indian Archipelago and Eastern Asia. Vol. 7, Nos. 4 and 5. From the Editors.

Journal of the Society of Arts of London. Nos. 49—62. From the Society.

Quarterly Journal of the Geological Society of London, No. 37. From the Society.

Reports of the Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1852. From the Society.

Leeds Philosophical and Literary Society, Annual Report for 1852 and 1853. From the Society.

Geological Map of Keweenaw Point, Lake Superior. By J. D. Whitney. From the Author.

Proceedings of the Boston Society of Natural History, March and April, 1854. From the Society.

Annals of the New York Lyceum of Natural History. Vol. 6, Nos. 2—4. From the Lyceum.

Collections of the Historical Society of Pennsylvania. Vol. 1, Nos. 1—6 May, 1851 to Nov., 1853. From the Society.

American Journal of Science and Arts, May, 1854. From the Editors.

New York Journal of Medicine. New series, Vol. 12, No. 3. From th Editors.

Virginia Medical and Surgical Journal. No. 13, April, 1854. From th Editors.

On the Serpents of New York. By Spencer F. Baird. From the Author.

Seventh Annual Report of the Regents of the University of the State of Ne York, Jan. 18, 1854, on the condition of the Natural History Cabinet. From th Regents.

The following were presented by Dr. Wilson, on the usual condition:—

Annals and Magazine of Natural History. Feb., March and April, 1854.

Quarterly Journal of Microscopical Science. Nos. 6 and 7.

London, Edinburgh and Dublin Philosophical Magazine. Nov., 1853, Feb March and April, 1854.

History of British Crustacea. By Thomas Bell. Part 8.

London Athenæum for March, 1854.

Thesaurus Conchyliorum. By G. B. Sowerby. Part 14.

Comptes Rendus. Tome 38, Nos. 9—13.

Description des Mollusques Fossiles. Par F. Pictet et W. Roux. Liv. 3.

L'organisation du Regne Animal. Par Émile Blanchard. Livs. 7, 8, 9. Foli is

Photographie Zoologique: publié par MM. Rousseau et Daveria. Livs. 1 a 2. Folio.

Annales des Sciences Naturelles. 3me serie. Tome 20, No. 5.

Journal of the Franklin Institute for May, 1854.

Illustrations of the Birds of California, Texas, &c. No. 4. 2d ed. By Jo Cassin.

Sylva Sylvarum, or a Naturall Historie written by the Rt. Hon. Francis Lo Verulam Vt. St. Alban. Published after the Author's death by Wm. Rawle D.D. Folio. 1635.

A description of East Florida, with a Journal kept by John Bartram of Phil delphia, upon a journey from St. Augustine up the River St. Johns as far as th Lakes. 3d ed. 4to. 1769.

The Animal Kingdom, or the Zoological System of the celebrated Sir Cha Linnæus; Mammalia and Birds; being a translation of that part of the Syste Naturæ published by Gmelin; with additions by Robert Kerr. 4to. 1791.

The Geographical, Natural and Civil History of Chili, translated from th original Italian of the Abbé Molina. 2 vols. 8vo.

Wilson's American Ornithology; with notes by Jardine, and a Synopsis of American Birds by T. M. Brewer. 8vo.

Conchologia Iconica. By Lovell Reeve. Parts 121 and 126.

Palæontographica. Beitrage zur Naturgeschichte der Vorwelt. Herausg. vo W. Dunker und H. von Meyer. 4to. Vol. 1, No. 6; Vol. 3, No. 6.

Malakozoologische Blatter für 1854. Feb. Von Menke und Pfeiffer.

May 16th.

Exploration of the Valley of the Amazon. By Wm. L. Herndon and L Gibbon, U. S. N. (Senate Document.) 8vo. and Atlas. From Dr. Rusch berger.

History, &c., of the Indian Tribes of the United States. By Henry R. Schoo craft, LL.D. Part 4. Folio. From the U. S. Commissioner of Indian Affairs.

Proceedings of the American Academy of Arts and Sciences. Vol. 3, p 1—104. From the Academy.

Boston Journal of Natural History. Vol. 6, No. 3. From the Boston Societ of Natural History.

July 4th, 1854.

Major LE CONTE in the Chair.

Letters were read—

From Dr. W. R. De Witt, State Librarian, dated Harrisburg, Penn., June 27th, 1854, requesting certain numbers of the Journal deficient in the series in the State Library.

From M. Giovanni Michellotti, dated Turin, June 8th, 1854, stating his intention to visit this country, and to bring with him his collection of Fossils, for which he desired temporary accommodations in the Hall of the Academy. Referred to the Curators.

From Dr. Wm. P. Gibbons, dated San Francisco, Cal., June 1, 1854, accompanying a communication entitled, "Descriptions of new species of viviparous marine and fresh-water fishes, from the Bay of San Francisco, and the River and Lagoons of Sacramento; read before the California Academy of Natural Sciences, Jan. 9, 1854."

The communication, being intended for publication in the Proceedings, was referred to Prof. Haldeman, Dr. Leidy, and Dr. Le Conte.

Dr. Leidy presented for publication in the Journal the following communications: "Notice of Producti found in the Western States and Territories, with descriptions of twelve new species; by J. G. Norwood and Henry Pratten, of the Illinois Geological Survey;" and "Notice of the genus Chonetes, as found in the Western States and Territories, with descriptions of eleven new species; by J. G. Norwood and Henry Pratten." Both papers were referred to a Committee consisting of Mr. Conrad, Dr. Leidy, and Mr. W. P. Foulke.

On leave granted, a resolution was offered, presenting to the State Library, at Harrisburg, Vols. 3, 5, 6, 7 and 8 of the 1st series of the Journal, and Vols. 1 and 2 of the 2d series of the Journal, and Vols. 1 to 6 of the Proceedings.

July 18th.

Major LE CONTE in the Chair.

Letters were read—

From the Smithsonian Institution, dated Washington, July 10th, 1854, acknowledging the receipt of the Proceedings, Vol. 7, No. 2.

From the Rev. Charles Fox, dated Detroit, Michigan, requesting for the University of Michigan a copy of the Publications of the Academy; also relative to a collection of minerals and shells for sale at Detroit.

July 25th.

Dr. LEIDY in the Chair.

The Committee on two papers by Messrs. Norwood and Pratten, of the Illinois Geological Survey, on new species of Producti from the Western States and Territories, and on new species of Chonetes from the same, reported in favor of publication in the Journal.

The Committee on Dr. Gibbons' paper, describing new species of vi-

viparous fishes from California, reported in favor of publication in the Proceedings.

*Description of New Species of Viviparous Marine and Fresh-water Fishes, from the Bay of San Francisco, and from the River and Lagoons of the Sacramento.** By W. P. GIBBONS, M. D.

In the first paper that I read before the Academy, descriptive of these fishes, I placed them among the Labroids, on account of their corresponding in characters to this family, as established by Cuvier. Prof. Agassiz, however, in a letter received from him, objects to this classification, because of the recent modifications which have been made in the characteristics of the Labroidæ. This question will be settled by a more intimate acquaintance with this extraordinary family, which probably comprises a large number of species yet undiscovered. The anomalous phases of animal and vegetable life in California, indicate the necessity of patient and thorough investigation before coming to final conclusions respecting the characters of new fishes. In my present descriptions, therefore, I place these fishes provisionally in the

Family LABROIDÆ.

Genus HOLCONOTUS.

Head of medium size; body subcompressed, arched; lips thick. Snout protractile; cheeks and opercula covered with scales, the latter with a thin membrane round the edges. Teeth conical, few, in a single row in each jaw. Branchiostegal rays five. Dorsal commences posterior to the pectorals; lateral line nearly concurrent. Spinous rays of the dorsal fold into a groove sufficiently deep to conceal them. A narrow, naked space two scales below the base of the middle and posterior portion of the dorsal; the length of this space not constant in the same species, but present in all the viviparous genera.

H. AGASSIZI, Gibbons.—Curve of the dorsum and belly correspond; a slight indentation at the base of the head; jaws equal; dorsal with 9 to 11 spinous rays, first one about a quarter inch long; 2d, double or treble the length of the 1st; the others gradually lengthening to the 6th, which is .75 inches; the others about of equal length; soft portion at its commencement about double the height of the spinous, regularly increasing to its termination, ½ inch high. 1st ray of the pectorals and ventrals spinous; that of the former very short; first 3 rays of anal short and spinous. A space, free of scales, extending from the base of the ventrals on each side to the base of the anal; the scales lining the edge of this space are folded; in the unimpregnated state, the opposite edges of this space meet. Eyes of medium size, irides varying in color with white, brown and yellow; superior anterior edge of the pupil flattened; nostrils double; cranium covered with mucous ducts as far down as the nostrils; a diffused patch of ducts between the nostrils and the angles of the mouth.

Head transparent gray, dark brown or black; back ash color, dark brown and olive, with metallic tints; sides copper brown, lightening into beautiful iridescent and flesh color or rose tints as they approach the ventrals. From 24 to 26 longitudinal stripes of silver white or flesh tints below, and varying from this to yellow or greenish-yellow as they ascend. Above the lateral line these stripes are nearly concurrent with the dorsum, but below they are nearly straight and parallel. Fins and tail irregularly marked with brown, black, olive or yellow. An ultramarine blue round the preopercle, under the orbit, and about the angle of the mouth.

Scales on the breast and along the base of the fins smaller than elsewhere. Extreme length, 15 inches; width, 6 inches; weight, 1 to 3 lbs.

D. 35; P. 21; V. 6; A. 36; C. 20.

H. GIBBONSII, Cal. Acad. of N. S.—Lips thicker; body less arched than the

* Read before the California Academy of Natural Sciences, Jan. 9th and May 15th, 22d, and 29th, 1854.

preceding species: back with a sharp ridge, anterior to the dorsal; curve of the belly slight till it comes to the base of the anal, at which point it takes an angular turn of about 60°, so as to throw the anal rays in a horizontal direction. Tail turned upwards from a horizontal position, but as the fish advances in age this curvature is nearly obliterated. Lateral line nearly concurrent. Eyes medium size, lower edge of the orbit in a line with the upper lip. Irides silver white and brown.

Back dark, with metallic tints. Head dark brown or transparent gray. An ultramarine blue band nearly surrounds the orbits, passing forward under the nostrils, where it curves downwards to the angle of the mouth and upper lip. Same color round the edges of the opercle and preopercle. About 24 longitudinal stripes, similar in color to the preceding, but more of a rose tint along the sides. A reddish-brown band extends along the dorsal and anal; the tail mottled with the same color; blue and orange color bands across the ventrals; 11 or 12 indistinct transverse red bands across the body. Caudal fin furcate, tail wider at the base of the fin.

Extreme length, 11 inches; width, 4 inches; weight, 1 lb.

D. 35; P. 22; V. 6; A. 36; C. 20.

H. FULIGINOSUS, Gibbons.—Head yellowish brown, transparent gray or nearly black; dark brown or black along the upper jaw on each side. Eyes rather large; irides silver white, yellow and purple brown. Lips quite fleshy, lemon color, the yellow extending under the jaw; parallel stripes, about 24, somewhat obscure. Scales along the base of the fins and in the space anterior to the ventrals and pectorals smaller. The free surface of the scales on the back dark brown; the angles formed by the edges filled in with blue, both colors growing lighter as they pass down the sides. Posterior extremity of the dorsal and anal rounded, dark band across the caudal and along the anal and ventral; anal banded blue and brown. Entire length, 13 to 15 inches; width, including dorsal, 5.5; weight, 2 to 3 lbs.

D. 30; P. 21; V. 6; A. 29; C. 20.

CYMATOGASTER, Gibbons.

Head of medium size; snout protractile; lips thickened; cheeks and opercula covered with scales; soft membrane around the edges; body oblong, ovate subcompressed, regularly arched, the curve of the dorsum and belly corresponding. Teeth small, conical, three rows in the upper, one in the lower jaw; those in the latter extending to the angle of the mouth; branchiostegal rays 5; pectorals anterior to dorsal; lateral line concurrent; scales of medium size. Nostrils double, anterior closed with a valve.

C. LARRINII, Gibbons.—Inferior edge of orbit on a line with the upper lip; eyes of medium size; lower jaw a little the longer; dorsal with nine spinous rays; 1st short, 2d, 3d, and 4th, double the length of its preceding one; 5th, the longest, about 1.25 in. above the scales, from which the fin diminishes regularly in height to its termination. Pectorals long and pointed, 1st short and spinous; anal with the three first short and spinous; posterior half of the fin in a groove similar to the dorsal. Scales back of head, and along the base of the fins smaller; those at the base of the anterior portion of anal very small; space free of scales from the base of ventrals to that of the caudal.

Head white, gray or mottled with brown; back, brown and gray; sides and belly, silver white; from 6 to 8 imperfectly defined yellowish transverse bands across the body. Dark color along the dorsal.

Extreme length, 15 inches; width 5.5; weight 3 to 4 lbs.

D. 36; P. 22; V. 6; A. 32; C. 22.

C. PULCHELLUS, Gibbons.—Line of the upper lip passing through the centre of the eyes; lips thin; two large scales anterior to the orbits; dorsal commences posterior to the pectorals, and opposite the ventrals; 1st three spines of dorsal short; 2d and 3d double the length of its preceding one; 4th three times as long as the third; 5th the longest, being one inch and seven-eighths, measuring

from the dorsal groove; from this, the height of the fin decreases regularly to its end, the last ray being about ½ inch high; 1st three rays of anal spinous, the outline of the fin being somewhat scolloped; about 68 scales along the lateral line; about 28 narrow silver longitudinal bands, mucous ducts irregularly dispersed over the head; head brown and transparent gray; back, lead color above the lateral line; edge of the dorsal membrane black; scales along the base of the fins smaller than elsewhere, those along the anterior portion of the anal very small.

Entire length 14 inches; in width, —, weight 2 to 3 lbs.

D. 35; P. 26; V. 6; D. 32; C. 20.

C. ELLIPTICUS, Gibbons.—Similar in general characters to the *Larkinsii*, body compressed, lighter and more silvery lustre, transverse bands darker, with a line of dark spots along the dorsal; edge of anal tipped with black. Extreme length 9 inches, width 4 inches, weight ½ pound.

HYSTEROCARPUS, Gibbons.

Head of medium size; snout protractile, lips moderately thick; body ovate, compressed, arched; cheek and opercle covered with scales, membranous round the edges; teeth conical, in a single row, not extending along the sides of the jaws. Branchiostegal rays 5. Pectoral opposite the dorsal. Intestinal canal short, with two inflexions enlarged at each extremity. Scales large, deciduous. Lateral line nearly concurrent with the back.

H. TRASKII.—Radius of curvature least along the anterior half of the dorsum. Facial line about 45 degrees; profile slightly incurved along the interparietal and frontal bones. Lower jaw the longer. Eyes rather large and near the facial outline. The dorsal has 17 strong, curved spines: 1st short, the succeeding ones increasing regularly in length to the 6th, which is the longest. The spinous rays lie in a groove, but only the two first are hidden by it, the others project about quarter of an inch above it, and alternately lap by each other so as to form a double row.

Pectoral subquadrangular, with the lower edge rounded, and the first ray short and subspinous. First ray of the ventrals shorter than the others, spinous and curved. First three rays of the anal spinous, short, thick and curved, the middle one largest.

Scales smaller on the summit of the back, on the opercula, at the base of the tail, of the anal and ventrals, and on the space bounded anteriorly by the ventrals and pectorals.

Color.—Back varies from ash color to dark brown; irregular blackish patches approximating somewhat to bands across the sides. Belly lemon yellow, becoming lighter and blending with the ash color up the sides. Sides in some, punctated with black, dark and yellow patches on the fins. Extreme length 6.5 inches, width 3 inches, weight 2 ounces.

D. 28; P. 18; V. 6; A. 23; C. 22.

Var. A. Facial line not so angular as the other, head deeper, less dorsal curvature, and no black bands.

The anatomy of these is similar to that of the viviparous species which I have already described, except that the uterus, instead of being bipartite at its anterior extermity, is ovoid, and has but a single system of uterine blood vessels.

The specimens from which this description is made were presented to me by my friend, Dr. J. B. Trask, who obtained them through the kindness of Mr. Morris, from the fresh water lagoons of the Sacramento river, and from the river, where they are found as high up as the fishermen have yet been.

HYPERPROSOPON, Gibbons.

Head of medium size; body compressed, oval; snout protractile; lips thin; cheeks, opercle and preopercle scaly, with membranous edges; teeth conical, in a single row, extending all round the lower jaw, and about half way down the upper one; branchiostegal rays 6; dorsal commences behind the pectorals

anal ventrals; scales medium size; lateral line nearly concurrent with the back; intestinal canal short; eyes very large, irides white, with a brown crescent above.

M. ARGENTEUS.—Back regularly arched with a slight incurvation along the frontal bone; curve of the belly greater than that of the back; upper lip on a line with the superior edge of the orbit; sides of the upper jaw nearly vertical; lower jaw the longer; dorsal has eight to nine spinous rays, 1st short; 2d, 3d and 4th, double the length of its preceding one, the 6th ray being the longest; dorsal groove obsolete along the soft rays; pectorals cuneiform, first one short and spinous; first three rays of anal fin spinous; a space quarter of an inch wide free of scales extends from the base of the ventrals round the vaginal orifice; nostrils double, anterior ones closed with a valve; two or three rows of very fine scales along the base of the anterior third of the anal; scales above the lateral line, and round the fins smaller than elsewhere; head ash color and dark brown; back light brown with blue metallic tints, silver white below the lateral line; from 22 to 24 silver white longitudinal stripes; outer edge of dorsal membrane, caudal and ventrals, darkly punctated, tips of ventrals black. Length including tail, 9 inches; width 4.5 inch; weight half pound.

D. 35; P. 26 to 28; V. 6; A. 36 to 40; C. 22.

M. ARCUATUS, Gibbons.—Curvature of the dorsum greater, and of the belly less than of the *Argenteus*. Mouth lower, in reference to the eyes. Head shorter, eyes smaller, dorsal groove longer. About the same size as the other.

MICROMETRUS, Gibbons.

Head of medium size, body ovate, compressed; snout protractile; lips thin; cheeks and opercula scaly; teeth conical, in a double row in each jaw, the inner row having from four to six; branchiostegal rays five; dorsal commences behind the pectoral, and about opposite the ventrals; scales rather large; intestinal canal six to ten inches long; eyes of medium size; tail forked.

M. AGGREGATUS, Gibbons.—Back slightly arched; lateral line not concurrent with the dorsal outline; belly curved more than the dorsum; space behind the ventrals covered with scales; head ash color; body with eight or nine longitudinal rows of black spots, commencing below the lateral line and becoming obsolete opposite the end of the dorsal, which are interrupted by three or four lemon colored vertical bands; back dark brown, with blue metallic tints; belly and tail silver white; extreme length five inches; width, including the dorsal, 2.25 inches; weight two ounces.

D. 21; P. 20 to 24; V. 6; A. 16; C. 20.

M. MINIMUS.—Dorsum more curved than the preceding; back brown with metallic blue tints, sides punctate with black, with lemon color patches along the middle; a diffused dark brown or black spot about the end of the spinous rays; membrane of the dorsal, of the tail and anal punctated black, ventrals yellow at base, tipped with black: a diffused black patch under the pectorals. About the same size as the preceding.

Var. a.—All the characteristics of the preceding, but with larger scales and lighter color; extreme length six inches; width 3.25 inches.

MYTILOPHAGUS, Gibbons.

Head of medium size; snout slightly protractile; lips thickened; cheeks and opercula covered with scales: with a soft membrane around the edges; body colong ovate, subcompressed, arched; back somewhat flattened; teeth conical, a double row in each jaw, those of the lower jaw extending to the angle of the mouth; branchiostegal rays six; pectorals anterior to the dorsal; lateral line nearly concurrent with the back; scales large.

M. FASCIATUS, Gibbons.—Curvature of belly greater than that of the back; eyes rather large, about a quarter inch above the line of the upper lip; lower jaw a little the longer; dorsal with ten spinous rays, first short, the succeeding ones gradually increasing in length to the sixth, which is the longest, being

about seven-eighths of an inch; articulated rays higher at their commencement than the spinous. Dorsal groove continuous to the end of the fin; pectorals long and pointed—first short and spinous; anal, first three short and spinous; the posterior half in a groove similar to the dorsal; scales smaller in front of ventrals and along the base of the anal and caudal; space free of scales extending from base of the pectorals around the vaginal orifice about one-third of an inch wide. Head light ash color or mottled with brown; belly silver white; eight or ten diffused light brown transverse bands across the sides; dorsal with dark patches; dark bands across the tail, and along the anal. Length, 15 inches; width, 6 inches; weight, 3 pounds.

D. 34; P. 24; V. 6; A. 30; C. 23.

PACHYLABRUS, Gibbons.

Head medium size, one fourth of entire length of the body; snout very protractile; lips very thick; cheeks and opercula covered with scales, latter membranous round the edges; teeth conical, few, a single row in each jaw; branchiostegal rays six: nostrils large, double, anterior one closed with a valve; dorsal commences behind the pectoral, and opposite the ventrals; scales of medium size; lateral line nearly concurrent.

P. VARIEGATUS, Gibbons.—Body subcompressed; dorsal outline somewhat depressed along the spinous portion of the fin; curve of the belly regular; head covered with mucous ducts; six rows of small, semiconcentric scales on the cheeks; the superior row commencing at the upper angle of the preopercula and terminating at the angle of the jaw; head naked above this limit; eyes large, furnished with a nictitant membrane; irides white; tail long and thick, widening at the base of the caudal; dorsal with 10 spinous rays, first short, 2d double the length of 1st; 3d, 4th, 5th, still longer; the remaining ones about an inch long; articulated rays 1.75 in. long at their commencement, half an inch at their termination; rounded; pectorals subquadrangular; 1st short and spinous; 1st 3d of anal short and spinous; about 30 longitudinal narrow silver lines; scales very small about the base of the caudal and anal fins. About 88 scales along lateral line; lips flesh color; head transparent gray and dark brown; back lead color, with metallic tints; color lighter down the sides. Extreme length 14 inches, width 6 inches, weight 1.75 pounds.

D. 34; P. 23; V. 6; A. 33; C. 20.

ELECTION.

Col. Victor Motschulsky, of St. Petersburg, and Alexander Von Nordmann, of the same city, were elected *Correspondents*; and the Rev. J. Brinton Smith, of Kingsessing, was elected a *Member*.

August 1.

Mr. CASSIN in the Chair.

A letter was read from Mr. E. George Squier, dated New York, July 18, 1854, transmitting the volume of Transactions of the American Ethnological Society, acknowledged this evening.

Also a communication from the Royal Bavarian Academy, dated Munich, May 12th, 1854, transmitting the publications from that Society, announced this evening; also acknowledging the receipt of certain Nos. of the Journal and Proceedings.

Dr. Leidy presented a paper from Mr. Charles Girard, intended for publication in the Proceedings, entitled "Descriptions of New Fishes collected by Dr. A. L. Heermann, naturalist attached to the Survey of

the Pacific Railroad Route, under Lieut. Williamson, U. S. A.;" which was referred to Dr. Hallowell, Prof. Baird, and Dr. Leidy.

Dr. Leidy also presented an addition to the paper of Drs. Shumard and Evans, on new fossil species from Nebraska, collected by the North Pacific Railroad Expedition, under Gov. Stevens; which was referred to the Committee on the former portion of the paper.

Also, by the same, a second paper from Messrs. Evans and Shumard, entitled, "Descriptions of new fossil species from the fresh-water Tertiary formation of Nebraska." Referred to Dr. Leidy, Mr. Conrad, and Mr. Phillips.

Dr. Leidy presented drawings of the dentition of a new genus and species of extinct mammal from Nebraska, which he characterized under the name of *Dinictis felina*. The specimen was loaned by Prof. Hall, of Albany. The head is about the size and general form of Machiarodus primævus. The genus holds the same relation to Putorius that Machiarodus does to Felis.

August 8th.

Major J. Le Conte in the Chair.

A letter was read from the Trustees of the New York State Library, dated Albany, July 3, 1854, acknowledging the receipt of the Proceedings, Vol. 7, No. 3.

Dr. Leidy presented a paper for publication in the Proceedings, entitled, "Synopsis of extinct Mammalia, the remains of which have been discovered in the Eocene Tertiary of Nebraska;" which was referred to Dr. Genth, Dr. Rand, and Mr. Chas. E. Smith.

August 15th.

Mr. Cassin in the Chair.

A letter was read from the "Société du Museum d'Histoire Naturelle de Strasbourg," dated 2d Jan., 1854, transmitting several Vols. of their Memoirs; also acknowledging the receipt of the Proceedings of the Academy for 1852.

A paper was presented from Mr. Chas. Girard, containing additional descriptions of Fishes collected by Dr. Heermann, which was referred to the Committee on the former portion of the paper.

Also, a paper by the same, entitled, "Enumeration of Marine Fishes, collected at San Francisco, Cal., by Dr C. B. Kennerly, Naturalist to the Survey of the Pacific R. R. Route, under Lieut. A. W. Whipple." Referred to Drs. Hallowell, Baird, and Leidy.

Dr. Hallowell presented a paper for publication in the Journal, entitled, "Contributions to South American Herpetology;" which was referred to Major Le Conte, Dr. Leidy, and Dr. Rand.

August 22d.

WM. PARKER FOULKE, Esq., in the Chair.

Letters were read—

From the Royal Imperial Geological Institute of Vienna, dated 19th May, 1854, accompanying the donation of its publication, announced this evening.

From the K. L. C. Acad. der Naturforscher, dated Breslau, 28th April, 1854, transmitting the last volume of its Nova Acta.

A paper was presented from Prof. Baird and Mr. Charles Girard, intended for publication in the Proceedings, entitled, "Notice of a new genus of Cyprinidæ;" which was referred to Dr. Hallowell, Mr. Cassin, and Dr. Leidy.

Also, a paper from Mr. Girard, containing "Observations on a collection of Fishes made on the Pacific Coast of the United States, by Lieut. W. B. Trowbridge, U. S. A., for the Museum of the Smithsonian Institution." Referred to Dr. Hallowell, Prof. Baird, and Dr. Leidy.

Dr. Le Conte presented a paper for publication in the Proceedings, entitled, "Synopsis of the Erotylidæ of the United States." Referred to Dr. Hallowell, Dr. McEuen, and Dr. Leidy.

Dr. Leidy made the following remarks.

My friend, Mr. Hanson, has called my attention to a review of the work entitled, "A Flora and Fauna within Living Animals," in the Gardener's Chronicle, London, April 8, 1854, edited by Prof. Lindley. The language in several passages of this review, would imply that the entophyta, described in the "Flora and Fauna," had not been discovered by its author. This, though no doubt unintentional on the part of the editor, is yet so apt to mislead the judgment of the readers of the Gardener's Chronicle, in estimating the value of the work, that I have considered it, in justice to myself, worthy of notice.

Prof. Lindley remarks in reference to the work, "It may be true, that it does not contain much, which may not be found in Robin's second edition of his admirable work on animals;" and further on, says, "We would point out more especially the plates, which represent the curious parasites which infest the intestines of different species of Julus, for though the principal of them are not overlooked by Robin, etc."

Thus it is made to appear, as if Robin had been the discoverer of most of the entophytes, described in the "Flora and Fauna," when on referring to pages 358, 395 and 403 of Robin's Histoire Naturelle des Végétaux Parasites, it will be found that all the vegetable parasites of the former work are duly accredited to its author.

The "Flora and Fauna" was presented for publication to the Smithsonian Institute in December, 1851, and appeared in printed form in April, 1853, the same year in which the second edition of Robin's work was issued from the press. The descriptions in the latter of those entophyta discovered by me, were taken from communications, published in the Proceedings of this Society in 1849.

I take this occasion to make a few remarks on a question in the same review, which Prof. Lindley proposes, in reference to the nature of the entophytes above indicated, whether they are to be considered as fungi or algae. Prof. Lindley observes, "for our own part, we have little doubt that they are all true fungals, as also are such productions as *Saprolegnia*, etc." In presenting an opinion with so little doubt, Prof. Lindley appears not to be "*au courant*" with a work entitled, "The Vegetable Kingdom. By John Lindley, Ph. D., &c.," in which the diagnoses of the two families mentioned are as follows:

Algales.—Cellular flowerless plants, nourished through their whole surface by the medium in which they vegetate; living in water or very damp places, propagated by zoospores, colored spores or tetraspores.

Fungales.—Cellular flowerless plants, nourished through their thallus, (spawn or mycelium,) living in air; propagated by spores, colorless or brown, and sometimes inclosed in asci; destitute of green gonidia.

Now all the entophyta in question, excepting such as are especially described as fungi, are flowerless plants, and are nourished through their whole surface by the medium in which they vegetate; and they live in a watery liquid, (the intestinal contents,) have no mycelium, and are propagated by spores in the manner of many undoubted algae; and, therefore, they agree with the former diagnosis, and not with the latter. They even differ in a very important character from *Saprolegnia*, (which on page 17 of the "Vegetable Kingdom," under the name of *Achlya*, is placed among the algae,) which possesses a mycelium, as I have frequently observed in this curious plant growing upon dead flies, earthworms, salamanders, &c.

August 29th.

Mr. CASSIN in the Chair.

The Committees to which were referred several papers by Mr. Chas. Girard, read Aug. 1, 15, and 22d, describing new species of Fishes, reported in favor of publication in the Proceedings.

Descriptions of new Fishes, collected by Dr. A. L. Heermann, Naturalist attached to the Survey of the Pacific Railroad Route, under Lieut. R. S. Williamson, U. S. A.

By CHARLES GIRARD.

PERCIDÆ.

1. CENTRARCHUS INTERRUPTUS, G.—General form rather elongated, very much compressed. Nuchal region swollen; oculo-cephalic region subconcave. Snout tapering; lower jaw longest. Posterior extremity of upper maxillary reaching a vertical line drawn back of the pupil. Head forming a little less than the third of total length. Eyes large and circular; their diameter being comprised four times in the length of side of the head. Scales on cheeks rather small; a little larger on the opercle than on the cheek.

D XIII. 11. A VII. 10. C 5. 1. 8. 7. 1. 4. V I. 5. P 13.

The origin of the spiny dorsal is situated opposite the base of the pectorals, and the origin of the anal, opposite the space between the eleventh and twelfth dorsal spines. The tip of rays, as well as the base of anal, extends a little farther back than the dorsal. The base of ventrals falls upon the same vertical line as that which would intersect the base of pectorals. Scales of medium size; minutely serrated.

Greyish brown above, silver grey beneath. Irregular transverse bands of dark brown or black, interrupted along the lateral line, the portion of the band above it is somewhat alternating with the portion beneath it. A large black spot may be seen at the upper angle of opercle.

Specimens from Sacramento River, Cal.

COTTIDÆ s. CATAPHRACTI.

2. COTTOPSIS GULOSUS, G.—Largest specimens a little over three inches in total length; of which the head forms the third, the caudal fin excepted. Preopercle provided with two small spines, such as may be observed in several species of *Cottus* proper, the head otherwise is smooth; mouth proportionately large; posterior extremity of upper maxillary reaching a vertical line, which would pass behind the pupil. A space of five twentieths of an inch exists between the

origin of the first dorsal and the occiput. Second dorsal connected with the first by a low membrane proceeding from the last spiny ray. Tips of posterior soft rays not quite reaching the base of caudal. Anal, about as high as second dorsal, but shorter. Caudal, well developed and posteriorly rounded. Origin of ventrals midway between the tip of lower jaw and the anus. Pectorals broad and large, its longest rays extending posteriorly as far as the fifth ray of second dorsal.

D IX. 18. A 13. C 3. 1. 5. 4. 1. 2. V I. 4. P 15.

Lateral line uninterrupted from thoracic region to base of caudal. Abdomen beset with minute prickles; skin elsewhere smooth.

Ground color reddish brown; head and dorsal region spotted with black. Dorsals, caudal and pectorals barred with blackish; first dorsal provided posteriorly with an elongated black spot. Anal and ventrals unicolor.

Inhabit San Joaquin River, Cal.

Genus ASPICOTTUS, Girard.

Head covered with bony plates. Opercular apparatus armed with strong spines. Mouth moderately cleft; jaw equal. Teeth on the maxillaries and front of vomer; none on the palatines. Gill openings separated by an isthmus; branchiostegal rays six in number. Dorsals distinct; first, rather small and lower than the second. Caudal rounded posteriorly. Pectorals broad and large. Insertion of ventrals under the base of pectorals. A series of bony scutellæ running along the sides of back from head to tail. Skin otherwise smooth.

Obs.—To this genus must be referred *Cottus bubalis* of Euphrasen, from the Baltic and Norwegian seas.

3. ASPICOTTUS BISON, G.—Greatest length seven inches and a half. Head broad and large, forming a little less than the third of the whole length. Body tapering rapidly backwards. Orbits raised above the surface of the skull, which exhibits a parieto-occipital carina. Above and inwardly of nostrils a rough plate is observable. Preopercle provided with four spines, uppermost very long, extending backwards to the posterior edge of opercle; the two next ones are small and directed obliquely downwards; the fourth, may be seen at the lower edge of that bone and directed obliquely forwards. The opercle has three spines; a stout one along the upper margin of that bone, and two small ones towards its inferior margin and directed obliquely downwards. The posterior extremity of interopercle, finally exhibits the last and smallest spine of the opercular apparatus. The isthmus is rather large. The first dorsal begins at a very short distance from the occiput, and is separated from the second by a similar small space. Its base is contained once and a half in that of the second dorsal, the posterior rays of which, do not reach the base of the caudal. The caudal in itself is rather long. The origin of the anal is under the fourth ray of second dorsal; the tips of its posterior rays are almost even with those of the last mentioned fin, although its base does not extend as far behind. The ventrals are long and slender; their insertion being nearly equidistant between the symphysis of lower jaw and the vent. The tips of pectorals reach a vertical line, which would intersect the second ray of second dorsal fin.

D VIII. 12. A 9. C 4. 1. 5. 4. 1. 5. V I. 3. P 16.

The lateral line appears to be occupied by a row of oblong bony plates, from thirty to thirty-three in number, and extending from head to base of caudal in diminishing gradually backwards.

Color dark brown above, mottled with black; fins (except ventrals) yellow and black. Beneath dull yellowish with brownish meandric lines under the head and throat; ventrals whitish.

From San Francisco, Cal.

Genus LEPTOCOTTUS, Girard.

General form of body and head elongated. Head smooth, with several spines on the preopercle. Mouth deeply cleft; upper jaw longer than the lower one. Teeth upon the maxillaries, front of vomer, and palatines. Gill openings

separated by an isthmus; branchiostegal rays, six in number. Dorsals separated by a narrow space; first, rather short, and lower than the second. Caudal subtruncated. Pectorals broad and large. Insertion of ventrals under the base of pectorals. Skin smooth as in *Scorpænichthys*. Lateral line continuous for the whole length of the body.

4. LEPTOCOTTUS ARMATUS, G.—Greatest length of specimens observed, about ten inches. Head forming more than the third of that length, caudal fin included. Surface of head and snout spineless. The only spines observable are situated on the preopercle; a very stout one terminated by three conical processi directed upwards and forwards, and a small, blunt one beneath directed downwards. The origin of the first dorsal is situated in a line with the posterior cutaneous flap of the opercle and upper edge of insertion of the pectorals; its base is about half that of the second dorsal. The caudal is subtruncated. The anal is much lower than the second dorsal and not quite as long. The insertion of ventrals is beneath the pectorals and nearer to the snout than to the vent. The tips of pectorals extend to a line corresponding to the anterior ray of second dorsal, which is in advance of the vent.

D VII. 17. A 16. C. 6. 1. 5. 4. 1. 7. V I. 4. P 19.

Ground color above blackish brown; whitish beneath. Dorsals, caudal and pectorals, yellowish, barred with black; anterior dorsal with a black spot posteriorly. Ventrals and anal whitish.

From San Francisco, Cal.

Genus SCORPÆNICHTHYS, Girard.

Head partly covered with bony plates, without, however, any rough appearance. A few small spines on the opercular apparatus. Mouth deeply cleft. Jaws equal. Teeth on the maxillaries, front of vomer, and on the palatines. Gill openings continuous; branchiostegal rays, six in number. Dorsals distinct though contiguous; first rather long and of the same height as the second. Caudal truncated. Pectorals broad and large. Ventrals inserted back of the base of pectorals. Skin smooth, without either scales or plates; lateral line distinct and continuous the whole length of the body.

5. SCORPÆNICHTHYS MARMORATUS, G.—A large species, of which several specimens were procured. The head forms the third of the length, the caudal fin excluded. A rather small and blunt spine is situated above and inwardly of the anterior nostril. The snout is rounded and gradually sloping anteriorly. The posterior extremity of the upper maxillary extends a little beyond the posterior rim of the eye. The preopercle is armed with two small spines only, and occasionally with the rudiments of a third. The other pieces of the opercular apparatus are spineless. A cutaneous, branching flap, similar to those of *Scorpæna*, is observable above the posterior rim of the orbit. The first dorsal begins immediately behind the occiput, with a base almost as long as the head, being composed of eleven rays, the last sending its membrane to the anterior ray of the second dorsal, which is one-fifth of its length longer than the anterior one. The anal is but little shorter than the anterior dorsal. The insertion of ventrals is a little nearer to the anal than to the tip of lower jaw, and are composed of five soft rays and a spine. The pectorals, composed of sixteen rays, are large and broadly developed, extending posteriorly beyond the tip of ventrals, reaching a vertical line drawn from the separation of the dorsals to the vent.

D XI. 19. A 13. C 6. 1. 5. 4. 1. 5. V I. 5. P 16.

Ground color of body light-yellow or dark-brown; fins yellowish; both body and fins marmorated with large, black patches.

From San Francisco, Cal.

SCORPÆNIDÆ s. CATAPHRACTI.

6. SEBASTES AURICULATUS, G.—This species is allied to *S. inermis* of the Japanese seas, in the structure of the upper surface of the head; the spines of which instead of being raised are reduced to horizontal ridges, terminating pos-

teriorly in acute points; membranous flaps are likewise wanting. The diameter of eye is contained four times in the length of side of the head. The posterior extremity of upper maxillary projecting a little beyond the posterior rim of the orbit.

D XIII. 14. A III. 7. C 4. 1. 6. 5. 1. 3. V I. 5. P 18.

The tip of pectorals when directed backwards extends to a vertical line which would intersect the anus. The first dorsal is composed of twelve spines; a thirteenth is situated at the anterior margin of the soft dorsal.

Color, reddish brown above and on the sides, becoming brighter towards the abdomen. The upper parts clouded with blackish. A large black spot covers the upper half of the opercle.

From San Francisco, Cal.

HETEROLEPIDÆ s. CATAPHRACTI.

We propose forming under the above name a new ichthyic group of the well known genus *Chirus*, and a new one described below under the name of *Ophiodon*.

The natural characters by which this group or family is distinguished are: a body elongated, compressed and tapering; covered with rather small scales. Two long dorsal fins occupying almost the whole of the dorsal region. Ventrals situated under the pectorals. Canine teeth upon the jaws, canine or velvet-like ones on the vomer and palatines. Preopercle and opercle either smooth or provided with spines. The posterior suborbital sends a narrow arcade to the limb of the preopercle as in the *Cottoids* properly so called; that bony arcade being concealed under the flesh, skin and scales constituting the cheeks.

CHIRUS, Steller.

This Genus we shall, for the present, characterise as follows: a superciliary, membranous arborescent flap. Mouth of medium size; canine teeth on both jaws; velvet teeth on the front of vomer and palatines. Preopercle and opercle without any spines. Cheek, opercular apparatus, and top of head, covered with small scales. Gill openings continuous and not separated under the throat. Branchiostegal rays six in number. Scales finely serrated posteriorly. Several lateral lines.

7. CHIRUS PICTUS, G.—About twelve inches in total length, in which the head is contained four and a half times. Eyes elliptical, longest diameter contained five times in the length of side of the head. Dorsals contiguous at their base only. Origin of anterior dorsal opposite the posterior flap of opercle. Anal as long as the second dorsal; membrane uniting the rays deeply indentated. Caudal posteriorly sub-convex.

D XIX. 23. A 21. C 4. 1. 7. 6. 1. 6. V I. 5. P 19.

Scales of medium size provided with but very few serratures upon their posterior margin. Minute scales on the head, cheeks, opercular apparatus and base of fins. Ground color dark brown. Large and numerous vermilion spots, bordered with black, on the sides and inferior fins. Ground color of belly, dull whitish or yellowish.

From San Francisco, Cal.

8. CHIRUS GUTTATUS, G.—Closely allied to the preceding, from which it is distinguished by a larger eye and broader scales, the posterior margin of which is much more serrated, so as to be much rougher to the touch. The origin of first dorsal is situated in advance of the posterior flap of opercle. The superciliary flap is much less developed. The caudal is subconcave posteriorly.

D XXI. 25. A 24. C 5. 1. 7. 6. 1. 6. V I. 5. P 19.

Ground color greyish yellow; upper part of head and sides of body with crowded small blackish spots extending to the pectorals, caudal and dorsals. Beneath unicolor and lighter. Ventrals and anal blackish.

From San Francisco, Cal.

The second Genus of this group, for which the name of

OPHIODON, Girard,

is proposed, has a more elongated head than the preceding one. Its mouth is deeply cleft; canine teeth exist on both jaws, rather more developed than in *Chirus*. The vomer is possessed with similar teeth as well as the palatines, where they form a very long series. Posterior convexity of preopercle provided with small spines. Minute scattered scales on the head, cheeks and opercular apparatus. Branchial apertures continuous; branchiostegal rays six in number, scales very small.

9. Ophiodon elongatus, G.—Largest specimen observed, twelve inches long, the head forming about one fourth of that length; the greatest depth, measured at the origin of the trunk enters seven times in the total length. The thickness is one third less than the depth. The body is gradually diminishing backwards, both in height and depth. The upper surface of the skull is slightly concave. Eyes, subcircular and quite large, their horizontal diameter being comprised five times in the length of side of the head. The posterior extremity of the upper maxillary extends beyond the posterior rim of the orbit. The anterior suborbital overlaps the upper maxillary. Six or more small spines may be observed upon the posterior curve of preopercle. The upper angle of opercle terminates in an acute processus. The subopercle is very long and stretches considerably beyond the opercle. The origin of the first dorsal is situated in advance of the spiny limb of the preopercle, at a distance of four tenths of an inch from the occiput; it is contiguous to the second dorsal, which terminates at an inch and three tenths from the base of caudal (not from its rudimentary rays). The anal is nearly the same length with the second dorsal. The tips of pectoral extend beyond the tip of ventrals.

D XXVI. 22. A 23. C 7. 1. 5. 6. 1. 6. V I. 6. P 17.

The scales are small, elongated, smooth and entire upon their anterior margin. They extend somewhat over the base of the fins.

The color is very imperfectly preserved; upon a dull yellowish ground may be seen, on the upper part of the body, dark or blackish brown spots irregularly scattered; the head appears uniform blackish brown. Beneath dull whitish yellow; scales silvery. Fins greenish yellow; ventrals and anal unicolor; rest exhibiting greyish spots.

From San Francisco, Cal.

GASTEROSTEIDÆ s. Cataphracti.

10. Gasterosteus williamsoni, G.—General form elongated, of rather slender appearance; body tapering gradually towards the base of caudal. Greatest length an inch and three quarters; head forming the third of it—caudal fin excluded—and covered with long plates so finely granulated as to appear smooth. Body perfectly smooth from head to tail. Two small dorsal spines; a third very minute one at the origin of the soft dorsal fin. Ventral spines quite small, exhibiting but few and very minute spiculæ upon its upper margin. Caudal posteriorly subconcave. Anterior spiny ray of anal very small.

D I. I. I. 11. A 1. 7. C 3. 1. 5. 5. 1. 3. V I. 1. P 10.

Color, above greyish brown, spotted; beneath of a soiled yellowish or whitish.

Specimens were collected at Williamson's Pass, Cal. The basin into which the waters in which they were caught flow, is not yet determined.

11. Gasterosteus microcephalus, G.—The head is very small, plated, and apparently smooth, although finely granulated. The body is quite deep upon its middle region, tapering towards both extremities; a little more rapidly posteriorly. The peduncle of tail is very short and contracted. Greatest length about an inch and a half, of which the head forms the fourth part. Anterior part of body from head to second dorsal spine, plated; remaining portion smooth. Two acute and well developed dorsal spines; a third one, and rather small, is

situated at the origin of the soft dorsal. A still smaller spine precedes the anal. Ventral spines very much developed, and serrated upon both edges, more minutely, however, below than above. Caudal posteriorly subcrescentic. Pectorals rounded posteriorly.

D I. I. 1. 9. A I. 6. C 2. 1. 5. 5. 1. 1. V I. 1. P 10.

Ground color yellowish brown, spotted or else transversely banded with greyish black; the spots or bands being formed of crowded dots. Beneath, dull yellow, occasionally dotted. Specimens collected in Four creek, a tributary of Tule lake (San Joaquin Valley), Cal.

ATHERINIDÆ.

Genus ATHERINOPSIS, Girard.

This genus is intended to include such species of *Atherina*, in which the palate is unprovided with teeth, having besides a mugiloid fashioned mouth; the intermaxillaries constitute its upper arcade, exclusive of the maxillaries, which are situated behind.

12. ATHERINOPSIS CALIFORNIENSIS, G.—Specimens measuring seven inches and a half in total length were observed; the head forming exactly the sixth part of it. The body is very compressed, slender and very graceful. The caudal fin is deeply forked; the base of anal is equal to the length of head; the base of second dorsal is scarcely half as long as that of anal. Insertion of ventrals equidistant between the tip of snout and posterior extremity of base of anal fin. Tip of pectorals not reaching the insertion of ventrals. Eye large and subcircular, nearer to the tip of snout of one of its diameter than to the posterior edge of opercle. The mouth is quite small. The head above is slightly convex.

D VI. 1. 10. A 1. 17. C 5. 1. 8. 7. 1. 7. V I. 5. P 13.

The scales are very large, constituting but thirteen distinct longitudinal rows upon the line of greatest depth of body. They are anteriorly rounded and posteriorly truncated, the margin of which, in the latter region, is ornamented by a series of tooth shaped serratures, more conspicuous upon large and somewhat dried specimens.

Greyish brown above, dull buff beneath the silvery band. Fins unicolor, dull yellowish or greyish. When the scales are removed the upper part of the body is reddish brown; the lower part lighter with a silvery reflection.

From San Francisco, Cal.

GOBIDÆ.

13. GOBIUS GRACILIS, G.—About three inches and a quarter in length; the body is slender, compressed and tapering. The head, which partakes of the slender aspect of the body, forms about the fourth part of the whole length. The mouth is very large; its angles corresponding to a vertical line which would pass near the middle of the pupil. The eye is large and elliptical, situated near the summit of the head and its longitudinal diameter comprised a little more than four times in the length of side of head. The interocular space above measures a fifteenth of an inch. The dorsal and anal are rather long. The caudal is posteriorly rounded or else convex upon its margin. Insertion of ventrals in advance of anterior margin of first dorsal and behind those of pectorals.

D V. 17. A 13. C 4. 1. 6. 5. 1. 5. V 5. P 18.

Dull reddish brown; fins blackish.

From San Francisco, Cal.

EMBIOTOCOIDÆ.

14. EMBIOTOCA LINEATA, G.—Body elongated, regularly arched on both the dorsal and ventral lines from head to posterior extremities of base of dorsal and anal fins. In specimens eight inches and a half in total length, the head is found to constitute a little less than the fourth of that dimension: the greatest depth, taken upon the middle of abdomen, does not enter three times in the length. The mouth is small; the posterior extremity of upper maxillary not

extending to the anterior rim of orbit. Eye circular: its diameter entering four times in length of side of head. Origin of first dorsal opposite the middle of base of pectorals, its base being nearly equal to that of anal and a little shorter than that of second dorsal. Caudal forked.

D X. I. 24. A III. 30. C. 3. 1. 6. 6. 1. 2. V I. 5. P 1. 21.

The scales are subquadrangular in shape, a little longer than high, provided anteriorly with from five to seven grooves.

Deep purplish brown above the lateral line, lighter beneath; sides of abdomen yellowish. Longitudinal light stripes between the rows of scales, more conspicuous below than above the lateral line. Dorsals, anal, caudal and ventrals purplish, base of anal exhibiting a whitish stripe. Pectorals whitish or yellowish.

From San Francisco, Cal.

15. Amphistichus similis, G.—Among the specimens collected, there is one —a female—a little over four inches and a half in length, which we propose to describe as a very closely allied species to *A. argenteus*. There are two prominent characters which will enable us to distinguish between both species: in *A. argenteus* the posterior extremity of upper maxillary extends beyond to a vertical line which would pass through the middle of the pupil, whilst in *A. similis* it scarcely reaches the anterior rim of the same organ. Again, in the former, the second and third spiny rays of the anal are much longer than in the latter. The number of rays of fins is nearly the same; the anal has three and the pectorals two more soft rays in *A. argenteus* than in *A. similis*. There are also eleven spiny rays to the anterior dorsal of *A. argenteus*.

D X. 24. A III. 25. C 2. 1. 6. 6. 1. 3. V I. 5. P 1. 24.

The head is contained three times in the length, the caudal fin excluded. The eye large and circular, enters less than four times in the length of side of head by its diameter. The greatest depth is to the greatest length, as one to three. The body is very much compressed. The insertion of ventrals is in a line with the third spine of anterior dorsal, which is also the line of greatest depth.

The coloration is not sufficiently preserved for comparative description.

From San Francisco, Cal.

16. Amphistichus heermanni, G.—A specimen of this species, a little over eight inches and a half in length, in affording one character proper to *Holconotus* has left us for some time in doubt as to its generic affinities. We speak of the structure of the dorsals, the anterior of which is composed of spiny rays higher than the soft ones of the second. Indeed, there is a slight depression in the line limiting these fins, corresponding to their point of junction; but finding that such was also the case in *Holconotus*, that character could no longer be of any generic value. Seeing, however, that there were two rows of teeth on the lower jaw as well as on the upper, and that the lips, rather thin, were not free upon the symphysis of the lower jaw, we decided on placing it in the genus *Amphistichus* where it really belongs. The shape and size of the mouth are altogether similar to that observed in *A. argenteus* and *A. similis*.

The body is very much compressed, of a short appearance, the nape prominently arched, the head contained about four times in the total length and the greatest depth twice, the caudal fin excluded. Eye contained about four times in the length of side of head. The posterior extremity of upper maxillary hardly reaching the vertical of the anterior rim of pupil.

The number of rays of the fins is the same as in *A. argenteus*, with an exception in the first dorsal, which has ten spines, instead of eleven, as in *A. similis*.

D X. 24. A III. 28. C 3. 1. 6. 6. 1. 3. V I. 5. P 1. 26.

The color does not differ much from that of *A. argenteus*.

From San Francisco, Cal.

CIPRINIDÆ.

17. Gila conocephala, B. and G.—There was but one specimen of this species collected, about seven inches and a half in length. General shape subfusiform, compressed; back slightly convex from nape to posterior margin of

dorsal fin. The head is subconical and contained exactly four times in the length, the caudal fin excluded. The mouth is comparatively large, although the posterior extremity of the intermaxillary does not quite extend to the anterior rim of the eye: the snout being prolonged, and the cleft of the mouth nearly horizontal. The eye is subcircular and its diameter contained five times and a half in the length of side of head. The anterior margin of the dorsal is nearer the end of snout than to the tip of central rays of caudal. The caudal itself is forked and participates of the slender appearance of the body. The origin of anal is situated behind the base of the dorsal, but at the same time in advance of the tip of the rays of the latter. The insertion of ventrals is situated in advance of the anterior margin of dorsal; their tip reaching the anus.

D II. 9. A II. 9. C 8. 1. 9. 8. 1. 9. V I. 9. P 16.

The scales are semicircular and of medium size. The lateral line forms an open curve along the sides, the convexity of which is downwards.

Upper regions of body and head brown; sides yellowish; abdomen whitish.

From Rio San Joaquin, Cal.

Genus POGONICHTHYS, Girard.

Shape of mouth as in *Gila;* angle of mouth provided with a small filiform barbel. Body fusiform and compressed. Caudal forked. Insertion of ventrals behind anterior margin of dorsal. Scales large and uniform. Lateral line below middle of flanks.

This genus represents in the western waters of North America that of *Gobio*, to which it is intimately related.

18. POGONICHTHYS INÆQUILOBUS, B. and G.—General form very regular, subfusiform and compressed. Total length of specimen described, about ten inches, of which the head forms a little less than the sixth part. The eye is subcircular; its diameter comprised about five times in the length of side of head. The mouth is of medium size; its cleft does not extend to a vertical line which would pass in advance of the orbit. A barbel, about an eighth of an inch, may be observed at the angle of the mouth. The origin of dorsal fin is equidistant between the extremity of the snout and the first rudimentary rays of the caudal. The caudal is long and deeply forked; its upper lobe projecting beyond the lower, although the structure of that fin is perfectly homorcercal. The anal is inserted behind the dorsal. The insertion of the ventrals is situated a little behind the origin of the dorsal, and consequently a little nearer the rudimentary rays of caudal than to extremity of snout. The pectorals are moderate.

D II. 9. A II. 9. C 8. 1. 9. 8. 1. 7. V I. 9. P 17.

The scales are large; fifty-six of these may be counted in the lateral line, which, upon the abdomen, approximates more to the ventral than the dorsal outline. The upper regions of head and body are greyish brown; the sides and abdomen yellowish. The fins partake of the color of the region of the body to which they belong.

From the San Joaquin river, Cal.

19. POGONICHTHYS SYMMETRICUS, B. and G.—The specimens before us being in a rather poor state of preservation, a description of the species can hardly be drawn with accuracy. The size of the largest is about four inches and a half in total length; the profile of body is subfusiform, very compressed, and gracefully elongated. The head constitutes the fifth of the length. The eye is large and its diameter contained less than four times in the length of side of head. The lobes of the caudal fin are symmetrical. The anterior margin of dorsal is equidistant between the end of snout and the extremity of central rays of the caudal. The lateral line forms a gentle curve, convex downwards, upon the middle of the abdomen, and nearer the insertion of ventrals than base of dorsal. The insertion of ventrals is situated in advance of the anterior margin of dorsal, a character which will at once enable us to distinguish this species from *P. inæquilobus*.

From Fort Miller, San Joaquin Valley, Cal.

Genus LAVINIA, Girard.

Mouth shaped as in *Gila* and *Pogonichthys*, but proportionally smaller than either and unprovided with barbel. Body covered with large scales as in *Pogonichthys*. The genus *Lavinia*, therefore, is intermediate between the two above mentioned.

20. LAVINIA EXILICAUDA, B. and G.—Body compressed, swollen upon its middle and tapering towards both extremities. Tail more particularly attenuated. Greatest depth, in advance of the dorsal, contained about four times in the length, which is eleven inches, and in which the head enters five times and a half. The mouth is very small; its angle being far from reaching the anterior margin of the orbit. The eye is circular and rather below the medium size; its diameter being contained nearly six times in the length of side of head. Isthmus very small; branchiostegal rays three on either side. Anterior margin of dorsal equidistant between the extremity of snout and tip of central rays of caudal, which latter fin is deeply forked. Base of anal longer than that of dorsal but considerably lower, particularly upon its posterior third. Insertion of ventrals in advance of the anterior margin of dorsal. Pectorals rather small.

D II. 12. A II 14 or 15. C 7. 1. 8. 8. 1. 7. V I. 19. P 17.

The scales are rounded and very thin. The lateral line, in which there are about sixty scales, forms an open curve on the abdomen with a downwards convexity much nearer the insertion of ventral than base of dorsal fin.

Reddish brown above, silvery grey on the sides, the scales being provided with minute crowded dots upon their margin. Beneath yellowish with scales unicolor. Fins yellowish grey.

From Sacramento River, Cal.

21. LAVINIA CRASSICAUDA, B. and G.—The body in this species is less deep in the middle and less attenuated behind than in *L. exilicauda*. The peduncle of the tail is largely developed and contrasts greatly with that of the latter mentioned species. The head and mouth are proportionally larger; the former being contained four times and a half in the total length; and the cleft of the second, although not reaching the anterior edge of the orbit, extends, nevertheless, farther backwards than in *L. exilicauda*. The greatest depth is about equal to the length of head. The eye is subcircular, and its diameter contained about six times in the length of side of head. The caudal is less emarginated posteriorly, and the insertion of ventrals situated almost under the anterior margin of the dorsal.

D II. 9 A II. 9. C 9. 1. 9. 8. 1. 8. V I. 9. P 17 or 18.

The scales are much larger than in *L. exilicauda*, and the course of the lateral line similar, being composed of about fifty-five scales. The general coloration is the same.

Specimens were procured at San Francisco, in the Rio San Joaquin, and several tributaries of that basin.

22. LAVINIA CONFORMIS, B. and G.—Only one specimen of this species was obtained; its total length being about four inches. It is related to *L. crassicauda*, having like it a much more compact tail than *L. exilicauda*. The general appearance of the fish is suggestive of *L. crassicauda*; the body is deeper and proportionally less elongated; the eye much smaller and the scales larger. Another distinctive mark between the two species consists in the position of the ventrals, the insertion of which in *L. conformis*, is situated in advance of the anterior margin of dorsal, whilst it is placed slightly behind it in *L. crassicauda*.

D II. 9. A II. 9. C 6. I. 9. 8. I. 6. V I. 8. P 16.

Purplish brown above, light on the sides; belly and head, beneath, dull yellowish.

From Posa creek, San Joaquin basin, Cal.

23. LEUCOSOMUS OCCIDENTALIS, B. and G.—Numerous immature specimens of this species were collected, together with one about five inches in length. The body is very much compressed, deepest upon the middle of its length and tapering towards both extremities. The greatest depth is contained four times in the

total length. The snout is subconical, head rather small, forming about the fifth of the total length, and slightly depressed above the eyes. The anterior margin of dorsal is nearer the base of caudal than to extremity of snout. The caudal is forked. Both the anal and dorsal are anteriorly elevated. Insertion of ventrals situated in advance of anterior margin of dorsal. Pectorals and ventrals of medium development.

D II. 11. A II. 12. C 8. I. 9. 8. I. 9. V 10. P 15.

The scales are of medium size and provided with radiating ridges. The lateral line is bent downwards upon the abdomen, constituting a curve, the convexity of which is nearer the ventrals than to the dorsal outline. Greyish brown above; sides silvery; belly dull yellowish.

From Posa and Four creeks, the latter emptying into Tule lake, San Joaquin Valley, Cal.

CLUPEIDÆ.

24. CLUPEA MIRABILIS, G.—Specimens before us are from eight to nine inches in total length, the head forming about the fifth of that dimension. The greatest depth is equal to length of head. The lower jaw is longer than the upper, the posterior extremity reaches to a vertical which would pass through the middle of the pupil. The eye is subcircular and large; its diameter being contained a little less than four times in the length of side of head. The anterior rays of dorsal are almost as high as the fin is long. The insertion of ventrals is situated in advance of middle of dorsal.

D 3. 15. A 14. C 4. 1. 11. 11. 1. 3. V 9. P 18.

This species is closely allied to the common herring (*Clupea harengus*) by its general appearance; the absence of teeth upon the palatine, the conspicuousness of the vomerine teeth (which are most so of all), and the presence of but two rows of them upon the tongue, will enable any one to draw the distinction between the two species.

From San Francisco, Cal.

25. MELETTA CÆRULEA, G.—The body is slender, gracefully elongated, ten inches in total length, of which the head constitutes the fourth part, not including the caudal fin. The depth measured in advance of dorsal, stands in relation to the total length as one to six. The body tapers away backwards from the insertion of ventrals and dorsal; in advance of these fins to the occiput its depth is sensibly the same, when the head again gradually slopes, above and below, towards the snout. The posterior extremity of the maxillary reaches a vertical line which would intersect the middle of the eye The posterior edge of opercular apparatus forms a uniform and rather flattened curve. The inferior branch of preopercle exhibits small radiating striæ; striæ more conspicuous are observed upon the inferior and inner half of opercle. The anterior margin of dorsal is nearer the snout than to the base of caudal. The ventrals are inserted opposite the posterior half of dorsal. Caudal deeply forked; anal long and low. Pectorals of medium development and acute upon their extremity.

D 3. 16. A 17. C 4. 1. 8. 8. 1. 4. V 8. P 18.

The scales are large, but few are preserved upon the specimen before us.

The back, upper part of the head and half of the sides are deep blue. Sides of head and lower half of flanks, silvery. Fins greyish or dull yellowish.

From San Francisco, Cal.

26. ENGRAULIS MORDAX, G.—The general physiognomy of this species is somewhat suggestive of *Engraulis encrasicholus*, the common anchovy of Europe, from which, however, it may be distinguished chiefly by the position of the ventrals, the insertion of which is exactly opposite the anterior margin of the dorsal. The body is slender and compressed, sharp upon the ventral line. The greatest depth is comprised nearly seven times in the total length and almost twice in the length of the head. The eye is large and subcircular; its diameter being contained four times in the length of side of head. The anterior margin of dorsal is nearer the base of caudal than to the extremity of snout.

D 1. 15. A 20. C. 3. 1. 10. 9. 1. 2. V 8. P 16.

The back is deep bluish brown; the sides are silvery.

From San Francisco, Cal.

PLEURONECTIDÆ.

Genus PLATICHTHYS, Girard.

Eyes on the left side and general form of *Rhombus*, but differing from the latter genus by a smaller mouth, a dorsal fin commencing above the eye and leaving, as well as the anal, a considerable space between its posterior margin and the base of the caudal fin. The snout is protruding, the lower jaw being the longest. Small and conical teeth on both sides of the jaws. Lateral line nearly straight, making but a slight curve upwards immediately above the pectorals.

27. PLATICHTHYS RUGOSUS, G.—General form of body subelliptical; head rather long; snout projecting, lower jaw longest; a row of short conical teeth. Posterior extremity of upper maxillary extending a little beyond the anterior rim of orbit, and approximating closely to this organ when the mouth is shut. The diameter of the eye is contained about six times in the length of side of head. Head forming the fourth of the whole length. Caudal fin subrounded posteriorly.

D 57. A 42. C 3. 1. 7. 7. 1. 2. V 6. P 11.

The ventrals are small, rounded posteriorly, and are inserted slightly in advance of the base of pectorals, which are of medium development and likewise rounded posteriorly. Instead of scales, the body is covered with small groups of minute asperities, very rough to the touch. Lateral line slightly arched above the pectorals; rest of its course straight to the base of caudal fin.

Left side dark reddish brown; fins yellowish green; dorsal and anal with alternate vertical bands of the same color as the body; caudal with longitudinal bands of the same hue. Ventrals and pectorals unicolor. Right side dull yellow.

From San Francisco, Cal.

Genus PLEURONICHTHYS, Girard.

Eyes on the right side; general form of *Platessa*. Head small; mouth very small. Origin of dorsal fin opposite the anterior margin of eye, and bent towards the colorless side of the fish. Teeth very inconspicuous, occupying both sides of the jaws. Dorsal and anal fins not reaching the base of caudal. Scales rather below the medium size; lateral line slightly arched above the pectorals.

28. PLEURONICHTHYS CORNUTUS, G.—Body subelliptical; head small; snout very short, lower jaw longest; mouth quite small. Teeth minute, conical and acute. Posterior extremity of upper maxillary extending beyond the anterior rim of the orbit. Eyes on the right side and large, the diameter contained less than four times in the length of side of head. Head constituting a little less than the fifth of the entire length. Origin of dorsal in advance of the eye; its posterior margin as well as that of the anal does not unite with the caudal, between which a small space exists. The caudal is rather slender and posteriorly rounded. The insertion of ventrals is quite in advance of the base of pectorals. The outline of both pectorals and ventrals is rounded.

D 74. A 54. C 3. 1. 7. 6. 1. 3. V 6. P 1. 10.

Body covered with small scales on the right side, and minute ones on the left. Opercular apparatus apparently smooth, but on a careful examination exhibiting scattered and inconspicuous scales, intermediate in size between those of the sides. Lateral line almost straight, with a slight inflexion upwards, immediately above the pectorals.

Ground color of body and fins deep brown, maculated with black and yellowish.

From San Francisco, Cal.

Genus PAROPHRYS, Girard.

Eyes on the right side. Body elongated as in *Solea*, but the head is conical, and the snout protruding, with the lower jaw longer than the upper. Mouth of

medium size. Teeth on the colorless side of the jaws only, as in the genus just mentioned. Dorsal and anal fins not extending to the caudal. Caudal truncated posteriorly. Lateral line almost straight, making but a small inflexion upwards above the pectorals. Scales small, covering the body and head.

29. PAROPHRYS VETULUS, G.—Body elongated, tapering considerably posteriorly, less so anteriorly where it is terminated by a wedge-shaped head and an acute snout. The head forms a little less than a fourth of the entire length, to which the greatest depth stands as one to three. The mouth is small, lower jaw longest; the posterior extremity of upper maxillary overruns slightly the vertical of the anterior rim of orbit. The teeth are minute. Eyes on the right side and very large, elliptically elongated and closely approximated, being separated by a narrow and elevated ridge; hence a sloping of either side of the ocular region. The longitudinal diameter of the eye is comprised four times in the length of the side of head. The dorsal fin begins above the eye, and terminates, as well as the anal, at a short distance from the base of caudal. The caudal is slender and posteriorly truncated. The pectorals and ventrals are small; the insertion of the latter being situated beneath the posterior extremity of the opercle.

D 86. A 64. C 3. 1. 7. 7. 1. 3. V 6. P 11.

The scales are very minute, and equally distributed over the body and head. The lateral line is nearly straight, making but a slight curvature, convex upwards just above the pectoral fin.

Ground color of body reddish ash, fins yellowish with small black spots irregularly scattered over body and fins.

From San Francisco, Cal.

Genus PSETTICHTHYS, Girard.

Eyes on either the right or left side. General form elongated as in *Soles*. Mouth rather large and oblique, lower jaw longest. Teeth slender and inconspicuous, occupying both sides of the jaws. Origin of dorsal fin opposite the anterior rim of orbit. Posterior margin of both dorsal and anal not reaching the base of caudal. Caudal posteriorly rounded. Scales very small. Lateral line slightly arched above the pectorals.

30. PSETTICHTHYS MELANOSTICTUS, G.—Body elongated; slender, tapering posteriorly. Greatest depth contained about three times in the total length, and head a little less than four times. Mouth large and oblique; lower jaw longest. Teeth slender. Posterior extremity of upper maxillary extending to a vertical line which would pass in advance of the pupil. Eyes on the right side and well developed, their diameter being contained four times and a half in the length of the side of head. The origin of dorsal is just above the eye and terminates, as well as the anal, before reaching the base of the caudal. The eight or ten anterior rays of dorsal are higher than the following ones. The central rays of caudal are the longest. The pectorals and ventrals are small and rounded upon their margin; the latter inserted considerably in advance of the former.

D 78. A 60. C 4. 1. 6. 6. 1. 3. V 6. P 12.

The scales are minute, covering the body and head. Ground color cinereous with crowded black dots, sometimes confluent or else grouped.

From San Francisco, Cal.

The above species, thus very briefly characterised, are to be more minutely described in an Appendix to Lieut. Williamson's official report of the Survey entrusted to his charge.

Enumeration of the species of marine Fishes, collected at San Francisco, California, by Dr. C. B. R. Kennerly, naturalist attached to the survey of the Pacific R. R. Route, under Lieut. A. W. Whipple.

By Charles Girard.

1. Cheirus constellatus, G.—This species comes nearest to *C. guttatus*, of which it has the general physiognomy and structure of the fins; but the head above is less convex, and the scales very differently imbricated. Thus, whilst in *C. constellatus* they constitute oblique series which may be traced in any direction, the same is not the case in *C. guttatus*.

D XX. I. 25. A 24. C 5. 1. 8. 7. 1. 4. V I. 5. P 19.

The ground color is greenish grey; the body at large exhibiting indistinct, cloudy spots, and on the anterior and upper region, groups of black dots varying in number. Similar dots are scattered over the upper part and sides of head, and the pectoral fins are literally covered with them, so as to divide equally the space with the ground color which make these fins appear maculated with black and yellow.

2. Atherinopsis californiensis, Grd. Proc. Acad. Nat. Sc. Philad. viii. 1854, p. 134.

Genus PORICHTHYS, Girard.

General form and external aspect similar to *Batrachus*, but more elongated; its generic features will consist in the series of pores extending to the whole length of body from divers regions of the head. There are neither scales on the body nor membranous appendages on the margin of the jaws. Two short tentacles in advance of the nostrils. The teeth are slender and acute; those on the vomer most conspicuous. The head is smooth; the opercle provided with one spine only.

Obs.—To this genus belong: 1st. P. porosissimus (*Batrachus porosissimus*, Cuv. and Val.) from the coast of Brazil; and 2d. P. porosus (*Batrachus porosus*, Cuv. and Val.) from Valparaiso.

3. Porichthys notatus, G.—Total length about nine inches and a half, the head forming the fourth of it in excluding the caudal fin. The mouth is broadly cleft; the posterior extremity of upper maxillary extending beyond the posterior rim of the orbit. The teeth upon the symphysis of the lower jaw are more slender and smaller than on the sides of that bone. The smallest teeth are those of the intermaxillaries extending almost to the whole length of these bones. The palatine teeth are a little larger posteriorly than anteriorly. The most conspicuous ones are observed on the vomer. Two minute and inconspicuous spines constitute the anterior dorsal fin. The second dorsal is somewhat higher than the anal, and the tips of the posterior rays of both of these fins reach the base of the caudal, there being but a narrow space left separating these fins from each other. The caudal is posteriorly rounded. The pectorals are spear-shaped; the central rays being the longest.

D II. 37. A 34. C 3. 1. 5. 5. 1. 2. V 3. P 20.

Upper regions purplish blue; sides and belly silvery grey. A subcrescent shaped vitta beneath the eye.

4. Embiotoca lineata, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 134.

5. Amphistichus argenteus, Agass. Amer. Jour. Sc. second series, xvii. 1854, p. 367.

6. Holconotus rhodoterus, Agass. Amer. Jour. Sc. second series, xvii. 1854, p.

7. Melletta cærulea, Grd. Proc. Acad. Nat. Sc., Philad. vii. 1854, p. 138.

8. Gadus proximus, G.—This appears to be a rather small species, for, amongst numerous specimens brought home by several parties, and now before us, the largest measures less than six inches in total length. The body is slender,

elongated and compressed, rather graceful in appearance. The head is contained four times and a half in the total length. The snout is pointed, the upper jaw overlapping considerably the lower one. The mouth is proportionally large, the posterior extremity of the upper maxillary extending to a vertical line which would fall in advance of the eye. The eye itself is above the medium size, subcircular in form, and contained about four times and a half in the length of the side of head. There exists a space between each dorsal, more considerable between the second and third, than between the first and second. The anals are likewise separated by a space nearly equal to that which is observed between the second and third dorsals. The ventrals are exiguous, their second ray being prolonged into a filament. The pectorals are small.

D 12. 19. 20. A 25. 22. C 5. 1. 16. 16. 1. 5. V 6. P 17.

Upper region yellowish ash; sides and belly silvery white. Minute crowded blackish dots upon the dorsals, caudal and posterior anal. Anterior anal, ventrals and pectorals yellowish, unicolor.

9. PAROPHRYS VETULUS, Grd. Proc. Acad. Nat. Sc. Phil'ad. vii. 1854, p. 140.

10. PSETTICHTHYS SORDIDUS, G.—General form subellipsoid; greatest length about five inches in which dimension the greatest depth enters twice and a third of a time. The head constitutes about the fourth of the total length. The mouth is oblique, and when shut the jaws are even. The eyes are large, subelliptical, approximated, and situated on the left side; their longitudinal diameter is comprised four times in the length of the side of head.

D 82. A 72. C 1. 1. 6. 5. 1. 1. V 6. P 1. 10.

The scales are of medium size, equally conspicuous upon the head and opercular apparatus. The lateral line is nearly straight, raising but slightly as it reaches the head.

Ground color of a soiled yellow; the scales are margined with blackish. The fins appear as if covered with a coating of dust.

Observations upon a collection of Fishes made on the Pacific coast of the United States, by Lieut. W. P. Trowbridge, U. S. A., for the Museum of the Smithsonian Institution.

By CHARLES GIRARD.

It is praiseworthy for officers of the government, whether military or civil, when detailed upon special duties, to devote their moments of leisure in serving the cause of science. Lieut. Trowbridge, while engaged under instructions from the U. S. Coast Survey, in making tidal observations for the use of that office, availed himself of such opportunities at his command to secure the fishes enumerated below, and we leave it to Naturalists to decide whether his labors were at all rewarded.

There are three main points whence specimens were obtained. 1st, PRESIDIO, on the Bay of San Francisco, where Lieut. Trowbridge himself is stationed; 2d, MONTEREY, on the Bay of the same name, where the same gentleman made several excursions; and, 3d, SAN DIEGO, where observations are conducted by Corporal A. Cassidy, U. S. A.

PERCIDÆ.

1. LABRAX NEBULIFER, G.—The head which is contained about three times in the length, the caudal fin excepted, presents a subconical appearance, from the fact of its being rounded upon its upper region, and gradually sloping towards the snout. The anterior part of the body, from the origin of the dorsal to the occiput is continuous with the profile of the head, the middle region slightly convex. The body gradually tapers backwards; the greatest depth taken between the insertion of ventrals and origin of first dorsal, is a little less than the fourth of the entire length, including the caudal fin; the greatest thickness measures in the same region as the depth, is a little more than the half of the latter. The body, therefore, is compressed, as usual in this genus, and the

general outline subfusiform. The eye is subcircular, and its horizontal diameter contained about six times in the length of side of head. The posterior extremity of the upper maxillary extends to a vertical line intersecting the pupil. The lower jaw is the longest. The third dorsal spine is much the longest in the first dorsal fin, and higher than any of the rays constituting the second dorsal. The caudal is subemarginated posteriorly. The insertion of pectorals is placed immediately in advance of the origin of anterior dorsal; the insertion of ventrals is situated immediately behind the base of pectorals.

D X. 14. A III. 8. C 4. 1. 7. 6. 1. 3. V I. 5. P 17.

The scales are of medium size. The lateral line follows the curve of the back and middle of the peduncle of tail.

Ground color reddish brown above, yellowish beneath, upper part of body provided with large cloud-like blackish blotches. A dark vitta extends obliquely downwards and backwards from the lower rim of orbit to the throat, across the cheeks and branchiostegal apparatus. The fins are purplish blue, very intense on the ventrals, base of second dorsal, and space between the third and fourth spine of first dorsal. The snout is covered with small roundish spots.

From Monterey, Cal.

2. Labrax clathratus, G.—The profile of upper part of head is more depressed, and the head more acute than in *L. nebulifer*. The lower jaw is more protruding, giving to the snout a pointed, instead of a rounded appearance, which it has in the preceding species. The fourth dorsal spine is the longest and equal in height to the highest rays of the second dorsal. The diameter of the eye is contained five times in the length of head. The origin of first dorsal is situated exactly opposite the base of pectorals.

D X. 13. A III. 7. C 3. 1. 7. 6. 1. 2. V I. 5. P 15.

Ground color purplish; belly whitish; upper part of back and sides covered with darker blotches, assuming an irregular fenestrated appearance. Pectorals yellowish, with a few sulphur transverse vittæ. Membrane of other fins purplish, second dorsal spotted. A subocular vitta passing nearer the angle of the mouth than in the preceding species.

From San Diego, Cal.

TRACHINIDÆ s. Percidæ.

Genus HETEROSTICHUS, Girard.

First dorsal fin very long, the first five anterior rays of which constitute an apparently distinct fin. Anal very long, provided anteriorly with but few spines. Dorsal and anal extending to near the caudal. Body very compressed and flattened posteriorly. Caudal slender. Ventrals situated in advance of pectorals. Lower jaw longest; mouth moderate. Teeth small and conical. Scales very small. Lateral line arched above the pectorals. Six branchial rays. Opercular apparatus without either spines or denticulations.

3. Heterostichus rostratus, G.—The head is rather small and conical, contiguous to a body anteriorly deep, tapering posteriorly, and very much flattened throughout. The nose is very much depressed and concave. The greatest depth measured above the pectorals, is contained five times in the entire length; the least depth is about the fourth or fifth of the greatest. The head forms a little less than the fourth of the length. The mouth is moderate, lower jaw much the longest; and the posterior extremity of upper maxillary reaches a vertical line, which would pass in advance of the pupil. The teeth are conical, slender and exiguous. The eye is subelliptical, and its horizontal diameter contained seven times and a half in the length of side of head. The dorsal fin originates at a very short distance from the occiput. The five first rays constituting an apparently distinct fin, subtriangular in shape, and much higher than the portion which follows, and which upon its anterior half, is higher than the posterior half. The soft dorsal is short, but high and in perfect continuity with the spiny one; the tips of its posterior rays not reaching quite as far back as

those of the anal, which approximate to the base of caudal. The caudal is slender and forked. The anal is very long and higher than the corresponding portion of dorsal; it is highest posteriorly and lowest upon the middle. The base of the pectorals falls under the space between the third and fourth dorsal spines. The ventrals are inserted much in advance of the base of pectorals, immediately under the throat; they are quite small and slender. The pectorals themselves are of but medium development.

D XXXVII. 13. A II. 34. C 4. 1. 5. 4. 1. 3. V I. 3. P 13.

The scales are very small, extending over the upper part of opercular apparatus to the cheeks; also to the rays of the fins to about half their height or length. The lateral line, from the upper angle of opercle runs almost straight till about under the twelfth spine of dorsal, then obliquely downwards until near the middle of flanks, thence straight to the base of caudal.

Ground color above yellowish brown with irregularly transverse blotches, or else interrupted, and then constituting longitudinal bands of a deeper hue. Head above deep brown; upper part of opercular apparatus exhibiting an elongated triangularly acute blotch, starting from the rim of the orbit. Sides and inferior surface of head yellowish. Belly dull yellow. Fins yellowish, blotched, except the pectorals, which are barred transversely, and the ventrals which are unicolor.

Greatest length of specimen described about eleven inches.

From San Diego, Cal.

SPHYRÆNIDÆ s. Percidæ.

4. Sphyræna argentea, G.—A specimen of this species which lies before us, is thirty-five inches in total length, of which the head forms a little less than the fourth part. The body is stoutish, thickest upon its middle and somewhat compressed, the depth being about one-third more than the thickness. The mouth is moderate; the posterior extremity of upper maxillary leaves a distance of three fourths of an inch between it and the vertical of the anterior rim of the orbit. Teeth on the intermaxillary, minute; on the lower jaw, moderate; on the palate, conspicuous and strong.

The eye is subelliptical, its anterior rim a little nearer to the tip of lower jaw than to the posterior flap of opercular apparatus. The scales on the cheeks are smaller than upon the opercular pieces; there are none to be seen in advance of the eye. The posterior extremity of anterior dorsal is nearly equidistant between the tip of lower jaw and the base of central rays of caudal. The latter is deeply forked. The extremity of pectorals is very far from reaching the anterior margin of first dorsal. The upper margin of both, the second dorsal and anal, is concave.

D V. I. 11. A 1·9. C 4. 1. 8. 8. 1. 3. V I. 5. P 13.

The scales are of rather medium size on the flanks, smaller on the back. The lateral line is straight.

The ground color of the upper region of head and body above the lateral line, is bluish black; whitish on the sides and yellowish on the abdomen. The scales have an argentine reflection which extends to the sides of the head and lower jaw. The lateral line is black. The membrane of the dorsal, caudal, anal and pectorals is yellowish, and their rays greyish; the ventrals are uniform yellowish.

From San Diego, Cal.

COTTIDÆ s. Cataphracti.

5. Cottopsis parvus, G.—May readily be distinguished from *Cottopsis gulosus* by a more compact and more fusiform body, a smaller head and consequently a much smaller mouth. The pectorals and ventrals are less developed, and the outline of the first dorsal is more convex. The caudal is posteriorly subtruncated. The insertion of ventrals is situated immediately behind the base of pectorals, and a little in advance of the origin of the first dorsal; and when brought backwards, their tip does not reach the anus. The tip of pectorals extends to a vertical line which would pass in advance of the origin of anal. The anal is much ower than the second dorsal.

D VIII. 21. A 15. C 5. 1. 4. 4. 1. 4. V I. 4. P. 15.

The head constitutes the fourth of the total length; it is quite depressed, and slopes gradually towards the snout; its width is one fourth greater than its depth. The eyes, of medium size, are placed near the summit of the head; their form is subcircular, and their horizontal diameter contained four times and a half in the length of side of head. The posterior extremity of upper maxillary reaches a vertical which would pass in advance of the pupil.

Minute prickles are scattered all over the skin, more developed above the lateral line than beneath it. The lateral line, itself very conspicuous, follows the curve of the back uninterrupted to the base of caudal.

Ground color yellowish brown above and on the sides; dull yellowish beneath. Sides and back with darker somewhat confluent blotches, or else groups of crowded dots resembling blotches. The pectorals, dorsals and caudal are barred; the anal and ventrals unicolor. First dorsal with a blackish blotch upon its upper and posterior portion. Base of caudal with a black bar, upper surface of head covered with dark roundish small spots.

From Presidio, Cal.

6. Leptocottus armatus, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 131.

Specimens of this species, most of which are in an immature condition, were obtained at Presidio, Monterey, San Pedro, and San Diego, Cal.

7. Scorpænichthys marmoratus, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 131.

From Presidio, Cal.

8. Scorpænichthys lateralis, G.—We know but a few small individuals of this species, the largest of which is less than four inches long. The body is compressed and tapering; the head being contained about three times in the length, excluding the caudal fin. The occipital region is flattened; the interocular space, convex, and the rostral distance, declive. The mouth is large; the posterior extremity of upper maxillary extends to a vertical line, which would intersect the posterior margin of the pupil. The eye is large, subcircular, and placed near the summit of the head; its horizontal diameter is contained four times in the length of the side of head. The interocular space is quite narrow. The opercular apparatus exhibits but a double spine of moderate development, situated upon the upper half of the limb of preopercle, with its point directed obliquely upwards. The caudal fin is posteriorly subrounded. The insertion of ventrals is situated under the middle of the base of pectorals. The origin of the dorsal is in advance of base of the same fins. The first dorsal is rather low, and not contiguous to the second, which is considerably higher.

D IX. 17. A 11. C 2. 1. 5. 4. 1. 1. V I. 3. P 15.

On the upper portion of dorsal region, alongside the dorsals, may be seen an elongated area covered with small pectinated scales or plates, disposed upon oblique or transverse rows. The skin is otherwise smooth, and the lateral line conspicuous, making a slight inflexion downwards upon the middle of the abdomen.

Upper region of head and body deep chestnut brown, variegated on the sides with shining yellowish areolæ and dots. Inferior surface of head, belly and tail uniform yellow. Fins spotted or barred.

From Monterey, Cal., and San Luis Obispo, Cal.

SCORPÆNIDÆ s. Cataphracti.

9. Scorpæna guttata, G.—The head has a pretty rough appearance: in the first place, the orbits seem as if emerging from the upper part of the skull, the middle line of which exhibits an obtuse groove. Three spines are observed along the upper edge of the orbit, behind which three more may be seen on either side of the occipital region and nape. Several supratympanic spines, but small; two diverging ones, upon the body of opercle, and four upon the limb of preopercle, the uppermost of which being much the stoutest and longest. Next we see four other spines irradiating downwards from the suborbitals, and finally the nasal bone terminates into a sharp and acute point directed upwards and slightly backwards. Intermingled with these numerous spines there are but two

pairs of small membranous and arborescent flaps,—we were going to say,—adorning the head, but in reality contributing to render it still more repulsive to an eye unitiated to scientific pursuits: the first pair is situated above the posterior part of the orbit, whilst the second occupies the inner upper edge of anterior nostril. The body is about eleven inches in total length, the head forming the third of it. The eye is large and elliptical: its horizontal diameter being comprised nearly five times in the length of side of head. The posterior extremity of upper maxillary reaches a vertical line which would intersect the posterior rim of orbit. The second dorsal has nearly the same height as the first. The caudal is subrounded posteriorly. The tips of posterior rays of anal are even with those of the second dorsal. The insertion of ventrals is under the base of pectorals; they are elongated. The pectorals are broad and very much developed; their posterior extremity extending considerably beyond that of ventrals.

D XII. 10. A III. 5. C 5. 1. 6. 5. 1. 3. V I. 5. P 18.

The scales of body are of medium size, and very small upon the occipital region and the head. The opercular apparatus is naked; scales being observed upon the posterior flap of opercle only. Ground color deep reddish brown above; yellowish brown beneath. The anterior portion of back and head almost black. Clouded patches of blackish, here and there, with numerous small black spots, more defined on the head than on the body, and much larger on the fins. Belly dull white; throat yellowish; inferior surface of head whitish and brownish.

From Monterey, Cal.

10. SEBASTES AURICULATUS, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 131.

From Presidio, Cal.

11. SEBASTES ROSACEUS, G.—The general form of this species might at first be suggestive of *S. norvegicus*, were the central rays of the first dorsal not so much higher than in the latter species, giving to that fin a decided convexity. The fish is rather stout than elongated, though much compressed, the depth of body being about equal to the third of entire length, which is about fourteen inches, and nearly equal to the length of head. The profile from the anterior margin of first dorsal to the end of snout is rather depressed, whilst it tapers quite rapidly from the second dorsal backwards, the peduncle of the tail being rather detached from the general shape. The upper part of head exhibits but two small horizontal spines, whilst the preopercle has five of them, rather stout and conspicuous. The upper part of opercle has two spines, the uppermost of which is the largest. The eyes are large and subcircular, reaching the upper profile of head, in the length of which their horizontal diameter is comprised four times, once in advance the anterior rim of orbit, and twice behind its posterior rim. The mouth is broad, but the posterior extremity of upper maxillary does not extend beyond a vertical line which would intersect the centre of the pupil. The second dorsal is scarce higher than the first. The posterior margin of caudal is slightly concave. The second spine of the anal is strong and robust; the tips of the posterior soft rays of that fin extend somewhat farther back than those of the second dorsal, but do not reach the base of the rays of the caudal. The insertion of ventrals is situated immediately behind the base of pectorals. The pectorals are very long, their tips extending beyond that of ventrals, and reaching a vertical line which would fall between the two dorsals.

D XIII. 13. A III. 7. C 5. 1. 5. 5. 1. 6. V I. 5. P 17.

The scales of the body are of medium size; those upon the head, cheeks, opercular pieces and throat are quite small. The course of the lateral line is parallel to the outline of the back.

The color is of a uniform reddish or crimson tint, lighter beneath. There exists, on the upper part of opercle, in the region occupied by the spines above alluded to, a large, elongated spot of a much deeper hue.

From San Diego, Cal.

12. SEBASTES FASCIATUS, G.—The species which we propose here to characterize, has more of the general aspect of a *Scorpæna*, than of the genus to which it belongs. The body, anteriorly, is very stout and deep, the head more rounded,

with its upper profile more inclined from the occiput to the snout than in the preceding species. The total length of the fish is about eleven inches, of which the head forms more than the third. The greatest depth is equal to the length of head. The upper surface of the latter exhibits conspicuous spiny ridges, very acute posteriorly. Five triangular spines occupy the limb of preoperele and two the upper part of operele. The posterior extremity of upper maxillary reaches a vertical line which would pass behind the pupil. The outline of anterior dorsal is convex and about the same height as the second. The caudal, posteriorly, is subrounded. The tips of posterior soft rays of anal are even with the tips of posterior soft rays of second dorsal, and both fins approximate the base of caudal. The ventrals are long and their tip reaches the vent. The pectorals are broad and extend a little farther back than the ventrals, the insertion of which is situated upon a line behind their base.

D XIII. 13. A III. 7. C 2. 1. 6. 5. 1. 3. V I. 5. P 18.

The scales are rather above the medium size; those on the head and opercular bones being comparatively more developed than in the preceding species. The lateral line is parallel to the outline of the back.

The ground color is greenish sulphur yellow; purplish black patches over the head, sides of body, and fins, in the midst of which patches appear crowded whitish spots. An area of ground color may be traced from the third and fourth dorsal spines obliquely downwards and backwards, towards the base of the caudal; in an oblique direction from the dorsal fin to the lateral line; then along the course of lateral line to the base of caudal fin. The throat is deep sulphur yellow; the inferior surface of the head and belly is spread all over with a more dull tint.

From Presidio, Cal.

HETEROLEPIDÆ s. Catapheacti.

13. Cheirus guttatus, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 132.

From Presidio, Cala.

14. Cheirus constellatus, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 141.

From Presidio, Cal.

GASTEROSTEIDÆ s. Catapheacti.

15. Gasterosteus plebeius, G.—The general appearance of this species is subfusiform in its profile and rather short. The depth upon the middle region of the body is a little less than the fourth of the length, whilst the head is contained in it three times and a half. The eye is of medium size and circular, its diameter entering four times in the length of the side of head. Mouth of medium size, lower jaw the longest. Upper surface of head minutely granular under a magnifying glass. Two well developed spines on the back, and a much smaller one preceding the soft rays of the dorsal. Posterior margin of the caudal, slightly crescentic. Ventral spines very much developed, inserted slightly in advance of the second dorsal spine, and denticulated upon either edge. Base of the pectoral situated in advance of the first dorsal spine.

D I. I. I-11. A I-9. C 3. 1. 5. 5. 1. 2. V I. 1. P 10.

The body is anteriorly plated from the head to the second dorsal spine; otherwise smooth and keelless on the sides of the peduncle of tail.

Ground color reddish yellow, blotched with blackish brown; blotches assuming sometimes the shape of vertical bands. Beneath silvery. Minute and crowded black dots are spread all over the body, head and fins.

From the salt marshes about Presidio, Cal.

16. Gasterosteus inopinatus, G.—General form slender, elongated, tapering considerably from the origin of anal backwards. Peduncle of the tail slender and long. The greatest depth, measured above the ventrals, is contained five times in the entire length; the head, on the other hand, falls a little short of the fourth of the same length. The eye rather large, is subcircular; its horizontal diameter enters three times and a half in the length of side of head; once in advance of the anterior rim of the orbit. The mouth is shaped as in the preceding

species. The upper surface of head exhibits some minute granules when examined with a magnifying glass. There are two slender dorsal spines and and another, small, precedes the soft rays of dorsal fin. Posterior margin of caudal subconcave. Ventral spines slender, inserted immediately in advance of the second dorsal spine and very minutely serrated above, inconspicuously beneath. Base of pectorals just in advance of anterior dorsal spine.

D I. I. I. 10. A I. 9. C 3. 1. 5. 5. 1. 3. V I. 1. P 10.

The body is anteriorly plated as in the preceding species, and smooth posteriorly.

Ground color above yellowish, densely dotted with blackish; abdomen silvery.

From a fresh water lagoon about one mile back of Presidio, Cal., where according to Lt. Trowbridge, no larger fish occur.

SCIÆNIDÆ.

17. UMBRINA UNDULATA, G.—Greatest length of specimen described, six inches, the head being comprised in it four times and a half. Body much compressed, particularly the upper part of flanks. Head and snout rounded; mouth rather small; posterior extremity of upper maxillary extending to a vertical line which would pass in advance of the orbit. Eye subelliptical, its horizontal diameter being contained five times in the length of side of head. First dorsal subtriangular; its anterior margin is situated a little behind the base of pectorals. The second dorsal, a little higher anteriorly than posteriorly, is twice and a half as long as the first. The caudal is posteriorly subtruncated. The anal is about one third deeper than its base is long, and as deep as the first dorsal is high. The posterior extremity of pectorals extends to a line which would intersect the first ray of second dorsal. The tip of ventrals extends beyond that of pectorals without reaching the vent.

D IX. I. 25. A I. 9. C 3. 1. 7. 7. 1. 2. V I. 6. P 20.

The scales are of medium size; those on the cheek and opercular apparatus are quite conspicuous. The lateral line is slightly arched under the first dorsal fin, otherwise parallel to the dorsal outline of the body.

Upper regions silvery-ash; inferior regions dull yellowish. Sides beneath the lateral line exhibiting oblique and undulated series of small greyish spots in the midst of a somewhat lighter ground of the same hue.

From San Diego, Cal.

18. GLYPHISODON RUBICUNDUS, G.—The head has a very short appearance as well as the body itself. The largest specimen measures nine inches and a half in total length, of which the head forms a little less than the fourth. The anterior upper part of body is very convex and the profile of the head very declive with two depressions, one above, the other below the ocular region. The mouth is small and the lips very fleshy. The eye is situated high up, small and circular, and contained five times in the length of the side of head by its diameter. The greatest depth, measured above the ventrals, is a little less than twice the length of head. The dorsal fin begins a little behind the base of pectorals; its spinous portion is low and its upper margin almost straight; the soft part rises into a subtriangular shape. The peduncle of tail is well defined, free above and below; the dorsal, however, coming nearer to the base of caudal than the anal does. The caudal is very large, deeply emarginated, but the lobes are uniformly rounded and broad. The soft portion of anal has the same conico-triangular shape as the soft dorsal. The ventrals are elongated and inserted behind the base of pectorals. The latter are quite broad, rounded upon their external margin; their posterior extremity falling short of that of the ventrals.

D XII. 16. A II. 15. C 3. 1. 6. 7. 1. 2. V I. 5. P. 19.

The scales of the body are very large, and so are those of the opercle. On the preopercle and cheek they are smaller. The scales extend to the dorsals, caudal and anal fins to nearly their extremity: on the spinous dorsal they are very conspicuous, whilst they become very small and almost minute on the caudal, soft dorsal, and anal.

The color is uniform deep crimson red throughout. The ventrals are exter-

nally margined with black. The lips appear to have had a deeper hue, as also the two cephalic depressions above alluded to.

From Monterey, Cal.

SCOMBERESOCES.

19. Belone exilis, G.—The head forms a little more than two sevenths of the entire length, which measures about twelve inches and a half. The body is very slender and exiguous. The head is flattened upon the occiput, and grooved between the eyes. The eye is well developed and its longitudinal diameter comprised about eleven times in the length of the side of head; seven times in advance of its anterior rim, and three times backwards of its posterior rim. The anterior portion of anal is more developed than the same part in dorsal, the posterior extremity of which is but seven tenths of an inch distant from the rudimentary rays of the caudal: the anal does not extend quite as far back. The anterior margin of the latter is situated considerably in advance of the dorsal, and its base is longer also. The insertion of ventrals is equidistant between the base of caudal fin and the centre of the pupil. The posterior margin of the caudal is emarginated.

D 16. A 13. C 4. 1. 7. 6. 1. 3. V 6. P 14.

The scales are quite small, few of which only are preserved on the specimen described.

Back deep greenish; sides and belly rufous with an argentine reflection upon the sides. Pectorals, ventrals, and anal greenish yellow; dorsal and caudal greenish grey.

From San Diego, Cal

BLENNIDÆ.

20. Blennius gentilis, G.—The body is very much compressed and tapering, from head, where deepest, to the base of caudal. The head constitutes the fifth of total length; the snout is very abbreviated and rounded. The greatest depth is about equal to the length of head. The mouth is rather large; the posterior extremity of upper maxillary reaching a vertical line which would intersect the middle of the pupil. The eye is large and circular, and its diameter contained four times in the length of side of head. A flattened and slender membranous flap is inserted above the eye. Soft portion of dorsal higher than the spiny part; anal much lower than dorsal. Ventrals long and filiform. Caudal posteriorly rounded, tips of both dorsal and anal reaching its base. The lateral line terminates under the eleventh ray of the spiny dorsal.

D XII. 17. A 19. C 6. 1. 5. 4. 1. 5. V I. 2. P 12.

Ground color yellowish-brown. Dorsals, caudal, and pectorals maculated with dark purple. Blotches of the same hue may be seen all along the back. Sides of abdomen and head marked with small subquadrangular spots also of dark purple. Upper part of head, snout, ventrals, and anal deep purple. Tips of rays of anal yellowish.

From Monterey, Cal.

21. Gunellus ornatus, G.—Body very much compressed, preserving its depth from head to origin of anal, hence gradually diminishing towards the caudal. Head small, rounded anteriorly, and contained nine times and a half in the total length. Posterior extremity of upper maxillary extending to a vertical line which would pass slightly behind the anterior margin of the orbit. Eye circular and of medium size; its diameter being contained about four times in the length of side of head. Dorsal and anal fins very low and united to the caudal. Origin of dorsal immediately behind the base of pectorals. Caudal posteriorly rounded. Origin of anal equidistant between base of pectorals and extremity of caudal. Ventrals reduced to a small spine, inserted immediately in advance of the base of pectorals.

D 76. A 35. C 2. 1. 8. 8. 1. 1. V I. P 12.

The scales are very minute; the lateral is not discernible.

Ground color yellowish; back marked with thirteen roundish spots of blackish

brown, two of which situated in advance of the dorsal fin. Occasionally, vertical bands of a lighter hue may be observed on the sides, though in a very obsolete manner in the specimen before us. There is an oblique vitta upon the occiput extending from the eye towards the back, an interocular spot, and a suborbital vitta from the orbit to the inferior surface of head. Lips blackish. Pectorals and anal yellow. Caudal greyish yellow.

From Presidio, Cal.

Genus APODICHTHYS, Girard.

This genus is framed to include such species, as, having the general *facies* of *Gunellus*, are characterized by the total absence of ventral fins.

The *Gunellus apos* of Kamtschaka is to come under this heading, under the appellation of *Apodichthys apos*.

22. Apodichthys flavidus, G.—The species referred to is between eleven and twelve inches long. Its head is anteriorly rounded and truncated, and is contained over nine times in the total length. The eye is rather small and subcircular, contained about seven times in the length of side of head. The mouth is large, obliquely directed upwards, and the posterior extremity of the upper maxillary extends to a vertical line which would pass behind the orbit. The origin of dorsal is situated opposite the base of pectorals. A stylet-shaped bone in advance of the anterior margin of anal, which is much nearer the extremity of caudal than to the base of pectorals. The pectorals are short and rounded upon their margin. The rays of the fins, as nearly as we can ascertain, are as follows:

D 86-90. A 40. C 4. 1. 11. 10. 1. 3. V 0. P 17.

The scales are exceedingly small, and the lateral line not visible.

Uniform yellowish, with a slight greyish hue. A narrow oblique black vitta from eye to occiput, and a similar one from the inferior rim of the orbit to the angle of the mouth.

From Presidio, Cal.

23. Apodichthys violaceus, G.—The specimen before us is much smaller than that from which the above species was described, having but three inches and three-fourths of total length, in which the head is contained seven times. The eye is subcircular, of medium size, and its horizontal diameter contained five times in the length of the side of head. The mouth is likewise obliquely directed upwards; but the posterior extremity of the upper maxillary extends only to a vertical line which would intersect the pupil. The origin of the dorsal is situated immediately behind the base of the pectorals: its anterior third is lower than the rest. The origin of the anal, which is much lower than the two posterior thirds of the dorsal, is much nearer the base of the pectorals than to the extremity of the caudal. The latter is very small, posteriorly rounded, and contiguous to both the dorsal and anal. The pectorals are short and rounded.

D 65. A 42. C 2. 1. 7. 6. 1. 2. V 0. P 10.

The scales are small, but proportionally larger than in the preceding species; and the lateral line, which is very conspicuous, may be traced from the upper margin of the opercle to near the caudal; from the opercle it ascends obliquely for a certain distance, and then follows the outline of the back, keeping much nearer the base of dorsal fin than the middle of the flanks.

The anterior portion of body and head is of a uniform deep violet; the posterior portion exhibits a somewhat brownish ground, over which is spread a violaceous tint; the fins are all deep violet. A deep purple crescent-shaped vitta extends from either eye to the occiput. Two oblique vittæ on the sides of head, starting, one from the anterior, the other from the posterior half of orbit to the branchiostegal apparatus. The interocular space is likewise marked with a transverse narrow band slightly convex backwards.

From San Luis Obispo, Cal.

24. Anarrichas felis, G.—Two large specimens of this fish were received in such a precarious state of preservation that there was no possibility of keeping

the whole, and accordingly the bony frame alone lies before us. The zoological characters of the species, as far as we could ascertain, differ from those of each of the species previously described; but having mislaid the notes taken at the time of unpacking the collection, we do not feel justified in giving a diagnosis of them from recollection, and merely record the species under the above specific name.

From Monterey, Cal.

LOPHIDÆ.

25. Porichthys notatus, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 141.

From Presidio and Monterey, Cal.

LABRIDÆ.

26. Julis modestus, G.—Body slender, elongated, and much compressed, tapering posteriorly from the origin of anal. The greatest depth, measured upon the middle of the abdomen, enters five or six times in the total length. The head is subconical, and constitutes about the fifth of the entire length. The eye is large, subcircular, and its horizontal diameter is contained four times and a half in the length of side of head. The dorsal commences above the base of the pectorals, being quite low for about half its length, and terminating at about three quarters of an inch from the base of the caudal. The origin of the anal is opposite the eleventh ray of the dorsal, and extends a little further back; the depth of that fin is equal to the height of the portion of the dorsal opposite to it. The caudal is posteriorly subtruncated. The insertion of ventrals is opposite the posterior extremity of base of pectorals, and their tips do not extend as far back as those of the latter fins.

D IX. 13. A III. 12. C 4. 1. 6. 5. 1. 3. V I. 5. P 12.

The scales are very large; the fall of the lateral line takes place in advance of the posterior extremity of the base of dorsal fin.

Rufous brown above, yellowish upon the sides, and dull whitish yellow beneath. Anterior seven dorsal spines with a black spot at their base; a blackish blotch at the base of the caudal.

From Monterey and San Diego, Cal.

ATHERINIDÆ.

27. Atherinopsis californiensis, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 134.

From Presidio, Cal.

EMBIOTOCOIDÆ.

28. Embiotoca jacksoni, Agass. Amer. Jour. of Sc. Second series, xvi. 1853, p. 387.

From Presidio, Cal.

29. Embiotoca lineata, G. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 134.

A large specimen of this species, collected at San Diego, Cal., contained five young ones, the total length of the largest being nearly three inches, and its depth equal to the third of its length. Their bodies are light reddish orange, with the peculiar longitudinal light stripes very conspicuous. The two anterior thirds of dorsals, the anterior third of anal, and the base of ventrals exhibiting a deeper reddish orange; the posterior portion of dorsal and of anal fins are rather yellowish. An elongated jet black spot exists near the base of the anterior portion of the soft dorsal; the tip of ventrals is black; the margin of the anterior dorsal fin also black.

The caudal is long and truncated; the extremities of both the dorsal and anal fins extend beyond the base of caudal as appears to be the case in the young of *Rhacochilus toxotes*.

From Presidio and San Diego, Cal.

30. Embiotoca cassidyi, G.—There is another species of *Embiotoca*, the young of which exhibit the same structure of the fins as observed in those of *E. lineata*

and *Rhacochilus toxotes*. We have before us five immature specimens, the largest of which measures but two inches and a half, and is consequently smaller than the largest of *E. lineata*. They were collected by A. Cassidy, and sent with other specimens, without mention being made whether caught freely swimming in the water, or taken by him from the parent fish. At any rate they are easily distinguished from those of *E. lineata* in possessing numerous transverse greyish bands more or less regular from head to tail and from dorsa to ventral line. The anterior portion of anal, the anterior edge of soft dorsal, the tip of spines of first dorsal, and the ventrals are blackish: the remaining parts of these fins, as well as the caudal and pectorals, are yellowish. The caudal is slightly emarginated posteriorly.

Adult specimens of this species have not yet fallen under our examination. We have not hesitated in establishing it as distinct from those already described after the careful study of the young in that family.

From San Diego, Cal.

31. HOLCONOTUS RHODOTERUS, Agass. Amer Jour. of Sc. Second series, xvii. 1854, p. 368.

Sixteen young were taken from the parent body; they are from eight-tenths of an inch to an inch long. A small vitelline sac is still to be observed at the abdominal region. The general form is slender and elongated. The head is deeper than the body and rounded; the snout much less prominent than in the adult; its general outline resembling more that of an adult *Amphistichus*. The vertical fins are much more developed than in the parent; the caudal is rounded off, the central rays being the longest. The soft dorsal and anal are likewise higher and extend posteriorly to the base of the caudal if not slightly beyond it, the dorsal at least.

Coloration uniform light yellowish; fins whitish of an extreme transparency owing undoubtedly to their having but shortly escaped from the egg.

Specimens were obtained at Presidio and San Diego, Cal.

32. HOLCONOTUS TROWBRIDGII, G.—This species is about the size of *H. rhodoterus* of which it has the general appearance. The body, however, is proportionally less elongated and consequently more deep. The greatest depth, measured between the origin of the first dorsal and the base of the ventrals, is contained three times in the total length, whilst the head enters in it four times and three fourths. The anterior portion of the body is superiorly very convex, and the upper surface of head sloping rapidly towards a rounded snout terminated by a very small mouth; considerably smaller than in *H. rhodoterus*, whilst the teeth are much shorter than in the latter species. The eye is large and circular, and contained but three times in the length of the side of head; the distance between the anterior rim of the orbit and the end of the snout is less than one diameter of the eye. A line drawn vertically down from the origin of the first dorsal would pass immediately behind the base of the pectorals. The base of the anal is comprised six times and a half in the total length of the fish, whilst in *H. rhodoterus* the base of the same fin enters in the length of said species but five times. The base of the ventrals is nearly equidistant between the symphysis of the lower jaw and the posterior extremity of the base of anal; in *H. rhodoterus* it is nearer to the snout.

D IX. 13. A III. 14. C 5. 1. 6. 6. 1. 4. V I. 5. P 1-16.

The size of the scales is nearly the same in both *H. trowbridgii* and *H. rhodoterus*.

The upper region, from the end of the snout to the base of caudal is reddish brown, with irregular interspersed clouded purplish spots. The side of head and abdomen are silvery. The fins are yellowish; a cloudlike purplish spot at the anterior portion of anal. The posterior half of ventral is of a deep purple.

Obs. The label accompanying this species was unfortunately lost, consequently its location we are not prepared to give.

33. HOLCONOTUS MEGALOPS, G.—This species, six inches and a half in total length, is the largest of its species, as far as observations go. The body is very much compressed and very deep upon its middle region, tapering rapidly from

the origin of anal backwards. The greatest depth measured under the anterior dorsal, is contained a little more than thrice and a half in the total length. The head forms a little less than the fourth of the whole length. The cephalic region is concave. Mouth rather above the medium size, its cleft being obliquely directed upwards; the teeth are very exiguous; the posterior extremity of upper maxillary does not extend beyond the vertical line of the anterior rim of orbit, owing to the oblique position of mouth. The eye is very large and circular; its diameter being contained less than three times in the length of side of the head. The anal is very long and low posteriorly. The caudal is forked. The origin of ventrals is under the second spine of the anterior dorsal.

D IX. 27. A III. 32. C 4. 1. 6. 6. 1. 3. V I. 5. P 1-26.

The scales are of medium size, and on the middle of flanks they are higher than long, and subrounded.

Dorsal region and head above, ash colored or greyish brown; dorsal and caudal greyish. Sides of abdomen and belly dull yellow or white, with a silvery reflection. Pectorals yellowish. Base of ventrals yellowish; tip blackish or deep purple. Anal yellowish at base with tips of rays greyish, and a diffused spot upon its anterior third.

From Presidio, Cal.

Genus PHANERODON, Girard.

Mouth rather small; jaws very protractile; teeth large and subconical. Lips not very fleshy; lower one attached to the symphysis of the jaw. Anterior part of dorsal fin gradually rising from the first to the last spine, which, however, is a little shorter than the first articulated ray. Anal very low but quite long, furnished with bifurcated rays.

This genus is allied to *Embiotoca* by the presence of one row of teeth only upon both the upper and lower jaws, and by the lower lip in not being free all around. The structure of the dorsal reminds us of *Amphistichus*, whilst the shape of the anal is strongly suggestive of *Holconotus*.

34. Phanerodon furcatus, G.—Body very flat, seven inches in total length, tapering more or less rapidly backwards from the origin of both the soft dorsal and anal. The greatest depth of body, measured above the insertion of ventrals, is contained a little less than three times in the total length, in which the head enters about four times and a half. The cleft of the mouth does not extend to the anterior rim of the orbit. The eye is large and circular, and its diameter comprised three times and a half in the length of side of the head. The insertion of ventrals is opposite the fourth dorsal spine. The base of anal is nearly equal to that of soft dorsal and lower than the latter, its spiny rays are very small. The caudal is slender and deeply forked.

D X. 23. A III. 33. C 4. 1. 6. 6. 1. 3. V I. 5. P 1-19.

The scales are large and provided anteriorly with numerous grooves.

Color yellowish brown above, lighter on the sides; whitish under the throat. Fins yellowish. Margin of dorsal and caudal greyish. A diffused marginal spot upon the anterior portion of anal.

From Presidio, Cal.

35. Amphistichus argenteus, Agass. Amer. Jour. of Sc. Second series, xvii. 1854, p. 367.

From Presidio, Cal.

CYPRINIDÆ.

36. Pogonichthys argyreiosus, G.—This species is allied to *P. inæqnilobus;* it is, however, distinct from the latter by the structure of the caudal which is equilobed like that of *P. symmetricus*. The head is contained five times in the total length, which, in the specimen before us, is about three inches and three quarters. The eye is large, subelliptical, and its horizontal diameter contained a little over three times in the length of the side of head. The body is compressed, regularly fusiform in its outline. The insertion of ventrals is situated some-

what behind the anterior margin of the dorsal. The pectorals and ventrals are rather small.

D I. 9. A II. 8. C 6. 1. 9. 8. 1. 5. V I. 9. P 16.

The scales are well developed; the lateral line is conspicuous and slightly bent downwards upon the abdomen.

The upper regions are rufous brown; the sides and belly shining silvery. Minute blackish dots are scattered all over, more densely on the dorsal region. A double series of these spots may be traced along the course of the lateral line. Dorsal and caudal fins greyish yellow; pectorals, ventrals and anal light yellow.

From Presidio, Cal.

37. FUNDULUS PARVIPINNIS, G.—Greatest length of specimen observed, three inches and one third; head contained in it a little more than four times. The body is compressed, the back slightly arched anteriorly to the dorsal fin. Greatest depth a little less than the fifth of the length. Eyes subelliptical, their horizontal diameter contained four times in the length of side of head: once in advance of the anterior rim of the orbit. Anterior margin of dorsal equidistant between tip of snout and posterior margin of caudal, which is subconvex. The origin of anal is opposite the middle of base of dorsal. All the fins are of small dimensions.

D II. 11. A 11. C 5. 1. 9. 8. 1. 4. V 5. P 16.

Scales rather large; twelve longitudinal rows may be counted on the line of greatest depth of body.

Ground color greenish yellow; upper part of head, back and sides blackish, resulting from the accumulation of minute dots upon the scales, less crowded on the flanks. Belly and inferior surface of head, unicolor, yellowish. A black stripe exists upon the middle of the flanks, from the anterior third of body to the base of caudal fin.

From San Diego, Cal.

GADIDÆ.

38. GADUS PROXIMUS, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 141.

From Presidio, Cal.

CLUPEIDÆ.

39. CLUPEA MIRABILIS, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 138.

An immature specimen, a few inches in length, the label of which was miscarried.

40. MELETTA CÆRULEA, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 138.

From Presidio, Cal.

41. ENGRAULIS MORDAX, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 138.

From San Diego, Cal.

42. ENGRAULIS DELICATISSIMUS, G.—The fascies of this species is widely different from that of either *E. encrasicholus* or *E. mordax*: the body being more compressed, less tapering, and the head much shorter and less acute. The entire length of the largest specimen before us is about three inches, the head being comprised in it nearly five times and a half. The greatest depth of body is a little less than the length of head, the upper surface of which is convex and but slightly declive. The eye is large and circular, and its diameter contained twice and three fourths of a time in the length of the side of head. The origin of dorsal is nearer the end of snout than to the extremity of caudal fin. The latter is forked. The base of anal is almost twice as long as that of dorsal, and its anterior margin situated opposite the middle region of the latter. The ventrals are small and short; the pectorals long and slender.

D 14. A 24. C 7. 1. 8. 8. 1. 6. V 5. P 12.

The few scales left scattered all over the body are very large.

Ground color yellowish; a silvery band, about a tenth of an inch, or slightly more, in width, occupies the middle of the flanks from head to base of caudal.

From San Diego, Cal.

SALMONIDÆ.

43. ARGENTINA PRETIOSA, G.—The body is gracefully elongated, compressed, fusiform in its outline, six inches and one third in total length, in which the head enters for a little less than the fifth. The eye is large and circular, and its horizontal diameter is contained a little over four times in the length of side of head. The posterior extremity of upper maxillary extends to a vertical line which would pass in advance of the pupil. The origin of dorsal fin is a little nearer the tip of lower jaw than to the base of caudal fin. The adipose is situated opposite the posterior fourth of anal. The caudal is forked. The origin of ventrals is placed a little behind the vertical line of anterior margin of dorsal; the fins are well developed. The pectorals are a little more slender and longer than the ventrals.

D 11. A 13. C 10. 1. 9. 8. 1. 8. V 8. P 1-16.

Scales of medium size. Upper region of head and back yellowish; outlines of scales marked by minute blackish dots. Sides of head and middle of flanks silvery, shining; lower part of flanks and belly dull yellowish.

From Presidio, Cal.

PLEURONECTIDÆ.

44. PLEURONECTES MACULOSUS, G.—Body elongated, subelliptical; dorsal and ventral outline forming most regular curves into which the head immerges anteriorly with but a very slight depression above the eyes. The peduncle of the tail is slightly contracted immediately behind the posterior margin of both the dorsal and anal fins, which terminate evenly. From this point to the base of caudal fin, the caudal region assume a dove tail shape. The caudal fin itself is undulated posteriorly, the external and central rays being slightly longer than the intermediate ones. The total length of the fish is about seven inches and a half, in which length the head enters four times and one third. The lower jaw is the longest. The posterior extremity of upper maxillary reaches a vertical line which would pass behind the posterior rim of the orbit. The eyes, placed on the right side, are of medium size, elliptical, and their horizontal diameter is contained about five times and a half in the length of the side of head. The origin of dorsal is opposite the anterior rim of the orbit; that of the anal is in advance of the base of pectorals, as also the insertion of the ventrals, which are short and broad.

D 68. A 52. C 3. 1. 7. 6. 1. 2. V 6. P 1-10.

Scales quite small, extending over the head and opercular apparatus. Anterior arch of lateral line representing the section of a cupola in miniature.

Ground color reddish brown, with numerous scattered spots of a much deeper hue.

From San Diego, Cal.

45. PLATICHTHYS RUGOSUS, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p 139.

Out of five immature specimens, two have the eyes situated on the right side, otherwise similar in every respect to those in which these organs are placed upon the left.

From Presidio, Cal.

46. PAROPHRYS VETULUS, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 140.

From Presidio, Cal.

47. PSETTICHTHYS SORDIDUS, Grd. Proc. Acad. Nat. Sc. Philad. vii. 1854, p. 142.

Specimens, smaller than those formerly described, exhibit upon their body and fins irregular small black spots, in addition to the color elsewhere alluded to.

From Presidio, Cal.

DISCOBOLI.

48. LEPADOGASTER RETICULATUS, G.—Head broad, semielliptical when viewed from above; upper surface declive towards the sides, as well as towards anterior extremity. It forms nearly the third of the entire length, which, in the specimen described, is about three inches and a half. Its inferior surface is flattened.

The mouth is broad in front, but not deeply cleft; its angle extending to the vertical of the anterior rim of the eye. The latter is small, subelliptical in shape, and situated near the upper surface of head; its horizontal diameter is contained about six times in the length of the side of head. The body is anteriorly broader than deep; it diminishes gradually in both height and depth towards the origin of the tail, which is quite compressed and very much reduced, and terminated by a slender caudal fin, rounded upon its posterior margin. The origin of the dorsal fin is situated a little in advance of the anus, but does not unite with the caudal, between which and the posterior extremity of its base, a space of three tenths of an inch is left; even the tips of its posterior rays do not reach the base of the caudal. The anal begins a little further back than the dorsal, is as deep as the latter is high, and extends likewise a little further behind; the tips of its posterior rays nearly reaching the base of the caudal. The pectorals are broad but short, the ventrals are imbedded in the membranous disk peculiar to that group of fishes.

D 14. A 13. C 3. 1. 5. 4. 1. 3. V 8. P 20 + 3.

The three inferior rays of pectorals are the stoutest, and situated under the throat, connected with the disk, which is very large. The surface of the anterior portion of the said disk exhibits large pavement-like cells.

The ground color is greenish brown, with a mesh work of black lines all over the head and body. The inferior surface of head and belly are dull yellow.

From San Luis Obispo, Cal.

LOPHOBRANCHII.

49. SYNGNATHUS BREVIROSTRIS, G.—Greatest length six inches and a half; head forming about the eighth of it. Snout abbreviated, distance from anterior rim of eye to tip of snout, equal to remaining portion of head. Dorsal fin quite low, and thirteen twentieths of an inch long. Posterior margin of same fin nearly equidistant between tip of snout and extremity of caudal. Pectorals small. No anal fin. Abdominal pouch, for the reception of the eggs after their laying, very long. Caudal of medium size and rounded.

D 30. C 1. 4. 4. 1. P 12.

Ground color greenish, tessellated with brown.

From San Diego, Cal.

50. SYNGNATHUS LEPTORHYNCHUS, G.—Entire length six inches; head contained in it six times and a half. Snout elongated and slender. Dorsal fin very low, and six tenths of an inch long; its posterior margin nearer the extremity of caudal fin than to the tip of the snout. Pectorals small. A rudimentary anal. Caudal slender and rounded posteriorly.

D 32. A 1. C 1. 4. 4. 1. P 10.

Dorsal region greenish yellow; sides bluish; abdomen whitish. Tail beneath dull yellow.

San Diego, Cal.

The Committees to which were referred papers by Dr. Leidy, read Aug. 8th, by Prof. Baird and Mr. Chas. Girard, read Aug. 22d, and by Dr. Le Conte, read same date, severally reported in favor of publication in the Proceedings.

Synopsis of extinct Mammalia, the remains of which have been discovered in the Eocene Formations of Nebraska.

By JOSEPH LEIDY, M. D.

CARNIVORA.

1. MACHAIRODUS PRIMÆVUS: Proc. Acad. Nat. Sc. 1851, v. 329; Owen's Report of a Geolog. Survey of Wisconsin, etc. 1852, 564; Ancient Fauna of Nebraska, 1853, 95.
2. DINICTIS FELINA: Proc. Acad. 1854, vii.

3. AMPHICYON VETUS:
Daphænus vetus: Proc. Acad. 1853, vi. 393.
4. HYÆNODON HORRIDUS: Proc. Acad. 1853, vi. 393.
5. HYÆNODON CRUENTUS: Ibid.
6. HYÆNODON CRUCIANS: Ibid.

SOLIDUNGULA.

7. ANCHITHERIUM BAIRDII: Owen's Rep. 572; Anc. Fauna, 67.
Palæotherium Bairdii: Proc. Acad. 1850, v. 121.
8. HIPPODON SPECIOSUS: Proc. Acad. 1854, vii. 90.

RUMINANTIA.

9. POEBROTHERIUM WILSONI: Proc. Acad. 1847, iii. 332; Owen's Rep. 571; Anc. Fauna, 19.
10. LEPTOMERYX EVANSI: Proc. Acad. 1853, vi. 394.
11. MERYCODUS NECATUS: Proc. Acad. 1854, vii. 90.
12. OREODON CULBERTSONII: Owen's Rep. 548; Anc. Fauna, 45.
Merycoidodon Culbertsonii: Proc. Acad. 1848, iv. 47.
Oreodon priscus: Ibid. 1851, v. 238.
Cotylops speciosa: Ibid. 239.
Oreodon major?: Anc. Fauna, 55.
Merycoidodon major?: Ibid.
13. OREODON GRACILIS: Proc. Acad. 1850, v. 239; Owen's Rep. 550.
Merycoidodon gracilis: Owen's Rep. 550.
14. AGRIOCHŒRUS ANTIQUUS: Proc. Acad. 1850, v. 121; Owen's Rep. 571; Anc. Fauna, 24.

MULTUNGULA.

15. ACERATHERIUM OCCIDENTALE.
Aceratherium: Proc. Acad. 1851, v. 331.
Rhinoceros occidentalis: Proc. Acad. 1880, v. 119; Ibid. 1851, v. 276; Owen's Rep. 552; Anc. Fauna, 81.
16. ACERATHERIUM NEBRASCENSE: Proc. Acad. 1851, v. 331.
Rhinoceros Nebrascensis: Ibid. 1850, v. 121; Owen's Rep. 556. Anc. Fauna 86.
17. TITANOTHERIUM PROUTII: Anc. Fauna 72.
Palæotherium, Prout: Am. Jour. Sc. Arts, 1847, iii. 248.
Palæotherium? Proutii, Owen, Norwood, and Evans; Proc. Acad. 1850. v. 66; Leidy: Ibid. 122; Owen's Rep. 551.
Rhinoceros? Americanus: Proc. Acad. 1852, vi. 2.
Palæotherium giganteum: Anc. Fauna 78.
Eotherium americanum: Proc. Acad. 392.
18. ENTELODON MORTONI.
Archæotherium Mortoni: Proc. Acad. 1850, v. 92; Owen's Rep. 558; Anc. Fauna 57.
Arctodon: Proc. Acad. 1851, v. 278.
Archæotherium (Entelodon?) Mortoni: Owen's Rep., refer. to Table X.
Archæotherium robustum: Owen's Rep. 572.
Archæotherium (Entelodon?) robustum: Anc. Fauna 66.

The above enumerated mammalia may be considered as well ascertained and distinct species. I am still uncertain whether *Eucrotaphus** is distinct from *Agriocharus;* and have, therefore, not included it in the list. The specimens upon which the former genus was characterised, apparently indicate two distinct species; whereas, all the teeth which have been found of the latter, so far have indicated but one species.

*See Anc. Fauna of Nebraska, p. 56.

Notice of a new genus of Cyprinidæ.

By S. F. BAIRD AND CHARLES GIRARD.

COCHLOGNATHUS, B. & G.—The jaws are armed with a spoon-shaped plate, the edge of which is sharp and cutting. Pharingeal teeth disposed upon one single row. The general appearance of the fish is cyprinoid, and strongly suggestive of *Pimephales*, the head having a rather robust appearance with a blunt snout. The mouth itself is rather small. There are no barbles or rudimentary barbles of any kind. The insertion of the ventral fins is situated opposite the anterior margin of the dorsal. The caudal is emarginate. The scales are very large. The lateral line is conspicuous, running through the middle of the flanks, slightly bent downwards upon the abdomen.

COCHLOGNATHUS ORNATUS, B. & G.—Head forming two ninths of the entire length, and abruptly rounded off on the snout. Mouth proportionately small and terminal with oblique cleft. Eyes rather above the medium size; their diameter being contained four times in the length of the side of head. Body much compressed, covered with large scales disposed in twelve longitudinal rows on the line of greatest depth. Lateral line inflexed downwards upon the abdomen. Anterior margin of dorsal nearly equidistant between the snout and rudimentary rays of the caudal. Anal, situated entirely backwards of the dorsal. Caudal forked. Insertion of ventrals beneath the anterior margin of dorsal; tip of pectoral not reaching them.

D I. 8. A 6. C 4. I. 9. 8. 1. 3. V 8. P 12.

The colors, as preserved in alcohol, present a reddish brown ground, and a dark lateral band or stripe. The dorsal fin exhibits two elongated dark spots, one anteriorly and basal, the other posteriorly and nearer to its tip. The posterior half of the caudal has likewise a darker hue than its anterior and basal half, which is of a dull orange, as is also its extreme margin.

Brownsville, Texas; collected by Capt. Van Vliet.

Synopsis of the EROTYLIDÆ *of the United States.*

By JOHN L. LECONTE, M. D.

ENGIS Paykull.

1. E. quadrimaculata Say, Bost. Journ. Nat. Hist. 1, 169. Middle, Southern and Western States. E. confluentus Say, Journ. Acad. Nat. Sc. 3, 195, is a species of Ips.

DACNE Latr.

1. D. fasciata Latr. Hist. Nat. Crust. et Ins. 10, 14: Gen. Crust. et Ins. 2, 20. Lacord. Erotyl. 65. *Ips fasciata* Fabr. Ent. Syst. emend. 2, 511: *Engis fasciata* Syst. El. 2, 582. (Laporte, Hist. Nat. Col. 2, 15). *Erotylus bifasciatus* Oliv. Enc. Méth. 6, 433. Middle and Southern States abundant; the reference in parenthesis is copied from Lacordaire.

2. D. heros Lacord. Erotyl. 67. *Engis heros* Say. Journ. Acad. Nat. Sc. 3, 196. Southern and Western States, not rare: also found in the Middle States, but very rare.

ISCHYRUS Lac.

1. I. quadripunctatus Lac. Erotyl. 127. *Erotylus 4-punctatus* Oliv. Enc. Méth. 6, 437. Ins. 89, tab. 3, fig. 37. Say, Bost. Journ. Nat. Hist. 1, 201. Georgia, Texas, Missouri.

LANGURIA Latr.

A. Antennæ articulis 6-11 dilatatis.

1. L. thoracica; rufa nitida, thorace parce punctulato, latitudine vix longiore, antrorsum angustato, lateribus rotundato, macula dorsali rotundata ornato, elytris

nigris subtiliter punctato-striatis, antennis, abdominis segmento ultimo, pedibusque nigris, illis articulo 6to septimo æquali. Long. 4—47.

Olivier, Ins. 88, tab. 1, fig. 2.

Southern States, not very rare. I see no reason why this is not Trogosita bicolor Fabr. (Ent. Syst. Suppl. 50; Syst. El. 1, 152): the description is "corpus medium; caput ferrugineum antennis oculisque nigris; thorax lævis glaber ferrugineus macula media nigra; elytra lævia nigra; corpus ferrugineum pedibus nigris;" this certainly approaches quite closely to the present species, and is very different from any of those to which other authors have applied it. On account of the slight difference in the antennæ, this species is made by Chevrolat the type of a separate genus Janessa (vide Dej. Cat).

2. L. puncticollis, rufa nitida, thorace parce punctulato, latitudine non longiore, antrorsum subangustato et lateribus rotundato, macula dorsali rotundata ornato, elytris nigris subtiliter punctato-striatis; antennis, abdominis segmento ultimo pedibusque nigris, illis articulo 6to septimo fere sesqui minore. Long. 33.

Say, Journ. Acad. Nat. Sc. 3, 462: Am. Ent. 3, tab. 39.

Pennsylvania. Except by the sixth joint of the antennæ being intermediate in size to the fifth and seventh, this species only differs from the preceding by the smaller size, and by the sides of the thorax being rounded only towards the anterior angles.

B. Antennæ articulis 7-11 subito dilatatis, subæqualibus.

3. L. læta, nigra, nitida, capite thoraceque læte rufis, subtilius punctatis, hoc latitudine longiore utrinque perparum angustato, lateribus late rotundatis, elytris striato-punctatis, interstitiis distincte punctulatis. Long. 35.

Kansas River. Body elongate, black shining. Head rufous, finely not densely punctured. Antennæ shorter than the head and thorax, black; joints 2—6 small, 6th hardly wider than the fifth; 7—10 broad, transverse, subequal; 11th round, almost equal in bulk to the tenth. Thorax, about one fourth longer than wide, with the widest part about the middle, very slightly narrowed towards the apex and base, broadly rounded on the sides, bright rufous, convex, finely not densely punctured. Elytra with fine, punctured, not deeply impressed striæ, which near the tip are somewhat obliterated; interstices distinctly finely punctured. Beneath, the head and prothorax are rufous, with the tip of the sternum and coxæ blackish; the other parts are black and very finely punctulate.

4. L. collaris, magis elongata, æneo-nigra, thorace rufo subtiliter parcius punctato, latitudine fere sesqui longiore, lateribus late rotundatis, elytris subtiliter punctato-striatis. Long. 32.

One specimen from Georgia. Narrower than the preceding, and entirely of the same form as L. trifasciata. Body black with a slight brassy tinge; head finely not densely punctured: antennæ as in L. læta. Thorax nearly one half longer than wide, somewhat narrowed anteriorly, broadly rounded on the sides, dull rufous, finely not densely punctured. Elytra with fine rows of punctures becoming obsolete towards the tip, interstices very obsoletely punctulate. Under surface black, with the exception of the prothorax, which is dull rufous, with the tip of the sternum dusky.

5. L. trifasciata, magis elongata, rufa nitida, capite, elytris basi et apice late, abdominisque segmentis duobus ultimis violaceo-nigris; thorace latitudine fere sesqui longiore, parce punctato, lateribus versus basin fere rectis, tarsis fuscis, antennis nigris, articulis 3—6 rufescentibus. Long. 25—31.

Say, Journ. Acad. Nat. Sc. 3, 462. Am. Ent. 3, tab. 39.

Western States; occasionally found in Pennsylvania. The elytra are moderately strongly punctato-striate; the tip is almost smooth. In the female the thorax is more convex and more rounded on the sides than in the male; the apical margin of the thorax is frequently blackish. In both sexes the seventh joint of the antennæ is somewhat smaller than the eighth. The under surface is sparsely punctured.

6. L. pulchra, magis elongata, rufa nitida, capite, antennis, elytris basi et

apice indeterminate et late, postpectore, abdominis segmentis duobus ultimis tarsis genubusque violaceo-nigris; thorace latitudine fere sesqui longiore parce punctato, lateribus fere rectis. Long. ·31.

One specimen, Pennsylvania; Mr. Rathvon. Closely resembles the preceding, and might readily be taken for a variety of it; but the antennæ are entirely black, the postpectus and tip of the femora are also black; the limits between the red and black of the elytra are badly defined; and the punctures of the under surface are very much finer.

C. Antennæ longiusculæ, articulis 7—11 dilatatis, 7mo sequenti plus sesqui minore.

7. L. Latreillei, valde elongata, linearis, nigra, nitida, thorace latitudine fere duplo longiore, lateribus vix rotundatis subparallelis, minus dense punctato, rufo, vitta dorsali integra nigra, elytris profunde punctato-striatis. Long. ·35—·4.

'*Languria bicolor* Fabr.'‡ Latr. Hist. Nat. Crust. et Ins. 12, 35; Gen. Ins. et Crust. 3, 65, tab. 11, fig. 11. ‡ Olivier, Ins. 88, tab. 1, fig. 1. ‡ Say, Am. Ent. 3, tab. 39.

?*Languria gracilis* Newman, Ent. Mag. 5, 390.

Middle, Southern and Western States. Latreille was the first to apply to this species the description of Fabricius, with which it by no means agrees; the other authors above mentioned have merely copied the error from him.

I should have applied the name given by Newman to this species, were it not that the size mentioned in his description (long. ·6 unc.; lat. ·06 unc.) could never be attained by it. The relative proportions of the length to the breadth are, however, impossible in this genus, and in other respects the description agrees with the species here described.

8. L. discoidea, rufa, thorace subtiliter parce punctulato, latitudine fere sesqui longiore, lateribus rotundatis, macula ovali dorsali nigra ornato, elytris nigris, subtiliter seriatim punctulatis, antennis abdominis segmentis ultimis duobus, pedibusque nigris; femoribus basi late rufis. Long. ·31.

One specimen, Georgia; resembles in appearance L. puncticollis, but is longer and narrower. Body rufous; head finely punctulate. Antennæ shorter than the head and thorax, black, with the second to the sixth joints slender, subequal; the 7th is slightly dilated, but not more than half as wide as the 8th, which again is narrower than the 9th; 9th and 10th equal, slightly transverse; 11th rounded. Thorax nearly one half longer than wide, widest about the middle, broadly rounded on the sides, convex, finely, not densely punctulate, with a discoidal oval black spot reaching from the apex to behind the middle. Elytra not wider than the thorax, bluish black, with fine rows of punctures becoming obsolete at the tip. Beneath rufous, first and second segments of the abdomen sparsely, coarsely punctured; fourth and fifth segments black. Legs black, basal half of the femora rufous.

9. L. tædata, piceo-rufa, nitida, capite postice nigricante, thorace latitudine fere sesqui longiore antrorsum angustato, lateribus rotundato, parce punctato, macula dorsali indeterminate nigra, elytris æneo-nigris, subtiliter striato-punctatis, antennis nigris, pedibus fusco-rufis, femoribus æneascentibus. Long. ·41.

One specimen found on the sea shore near New York. Body moderately slender, dark rufous tinged with piceous and brassy; head sparsely punctured, punctures finer towards the occiput, which is nearly black. Antennæ shorter than the head and thorax, joints 2—6 slender, the third being twice as long as the second; 7th slightly dilated, 8th still more dilated, but not as wide as the 9th and 10th, which are somewhat transverse; 11th larger, rounded. Thorax narrowed at the base, more narrowed anteriorly; sides broadly rounded; disc moderately convex, sparsely, not finely punctured, with a large rounded, ill-defined, dorsal spot. Elytra brassy black, shining, finely striato-punctate, striæ finer posteriorly, but extending almost to the tip. Under surface entirely rufous with a piceous tinge, uniformly sparsely punctured. Legs fusco-æneous, femora, except at base, piceous black tinged with brassy; tarsi almost rufous.

10. L. Mozardi, rufa, nitida, thorace latitudine longiore, convexo, parce punctulato, lateribus late rotundatis, elytris cyaneo-nigris, punctato-striatis, abdominis segmentis ultimis tribus antennis pedibusque nigris, femoribus basi rufis. Long. ·22—·31.

Latreille, Gen. Crust. et Ins. 3, 66. Olivier, Ins. 88, tab. 1, fig. 3. Say. Am. Ent. 3, tab. 39.

Middle, Southern and Western States; not rare. This species has the antennæ rather stouter than the others of this division, and the fifth and sixth joints are a little rounded; the seventh joint is a little smaller than the 8th, which is also a little smaller than the ninth. By these characters it forms a transition towards L. trifasciata, of division (B.)

11. *Trogossita?* angustata Beauvois, Ins. d'Afrique et d'Amer. 125, tab. 32, fig. 2.

12. L. brevicollis, Randall, Bost. Journ. Nat. Hist. 2, 48, and

13. L. inornata Randall, ibid, from Massachusetts; are unknown to me.

TRIPLAX Payk.

I continue to retain Tritoma united with this genus, as the slight difference in form will by no means warrant their separation. The differences in the antennæ cannot be considered as of greater value, since in neither of the groups are they persistent; finally, the last joint of the maxillary palpi is more transverse in the genuine Triplax, being about three times wider than long, while in Tritoma the breadth is only double the length. For convenience in determining the species they may be arranged in several divisions.

A. Corpus elongato-ovale; palpi maxillares articulo ultimo latitudine triplo breviore; tibiæ anticæ haud dilatatæ.

* Antennarum articulo 8vo præcedenti simili.

1. T. festiva Lacordaire, Mon. Erotyl. (1842,) 208. Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. *T. fasciata* Mels. Proc. Acad. Nat. Sc. (1847,) 3, 176. Southern States, rare.

2. T. macra, elongata, elliptica, rufa, nitida, thorace latitudine duplo breviore, antrorsum angustato, lateribus fere rectis, dorso subtilius parce punctato, elytris nigris subtiliter striato-punctatis, interstitiis vix parce punctulatis, antennis nigris thorace non brevioribus, articulo 3io sequenti sesqui longiore. Long. ·24, (lat. ·10.)

One specimen from Maine, given me by Prof. A. Guyot. Proportionally much narrower than the next species, which it resembles in coloring, but is distinguished by the thorax being less punctured and not narrowed anteriorly; by the striæ of the elytra being impressed, by the interstices having no distinct punctures, and by the antennæ being entirely black.

3. T. thoracica Say, Journ. Acad. Nat. Sc. 4, 89. Lec. ibid. 2d ser. 1, 71. *T. melanoptera* Lac. Erotyl. 215.

Georgia, New York, Lake Superior. In some specimens the thorax is narrowed from the base; in others the sides are parallel from the base nearly to the middle; this difference is probably sexual.

4. T. californica, elongato-ovalis, antennarum basi, pedibus, capite thoraceque rufis, hoc latitudine plus duplo breviore fortius punctato, a basi antrorsum angustato, lateribus rectis, elytris fortius seriatim punctatis, striis subimpressis, interstitiis parce punctulatis. Long. ·15—·18.

San Jose, California. Somewhat less convex than the other species, and distinguished from the next, which it resembles in color, by the 8th joint of the antennæ being similar to the seventh. From that, as from all others of division (A.) it is known by the coarser punctuation and by the very straight sides of the thorax.

** Antennarum articulo 8vo triangulari, paulo dilatato.

5. T. flavicollis Lac. Mon. Erotyl. 218. Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. A common species found from Louisiana to Lake Superior. It is certainly by error that Dr. Melsheimer (Cat. of Described Col. &c. p. 46) considers it as Tetratoma dimidiata Fabr. (Syst. El. 2, 574) since we have a native species of Tetratoma which corresponds with the description.

6. T. confinis, nigra, elliptica, antennis (clava excepta) pedibus capite thoraceque rufis, hoc latitudine plus duplo breviore, lateribus magis rotundatis, sat punctato, elytris punctato-striatis, interstitiis parce punctulatis. Long. 16. New York, two specimens. This species resembles closely the preceding, and only differs by the body being somewhat broader and less convex, and by the sides of the thorax being considerably rounded, instead of obliquely and slightly rounded. A more detailed description is therefore unnecessary.

B. Corpus ovatum; palpi maxillares articulo ultimo latitudine duplo breviore.

a. Tibiæ anticæ non dilatatæ; antennarum articulo 3io sequentibus duobus longiore.

7. T. sanguinipennis Say, Journ. Acad. Nat. Sc. 4, 89. Lec. ibid. 2d ser. 1, 71. Middle and Southern States.

8. T. pulchra. *Tritoma pulchrum* Say, Journ. Acad. Nat. Sc. 5, 301. *Tritoma cincta* Lac. Erotyl. 223. Middle States, rare; for my unique specimen I am indebted to Mr. Ziegler.

9. T. dimidiata. *Tritoma dimidiata* Lacord. Erotyl. 224. *Trit. basalis* Mels. Proc. Acad. 3, 175. *Triplax pulchra* Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. Middle and Southern States.

10. T. vittata Lec. Journ. Acad. 2d ser. 1, 71. One specimen, Western New York.

b. Tibiæ anticæ plus minusve dilatatæ; (antennæ ut supra.)

α. Thorax elytraque nigra, his macula basali ornata.

11. T. ruficeps Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. South Carolina, Mr. Zimmermann.

12. T. humeralis. *Tritoma humerale* Fabr. Syst. El. 2, 571. *Triplax tæniata* Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. Middle and Southern States; abundant.

13. T. biguttata Say, Journ. Acad. Nat. Sc. 4, 89. *Tritoma basalis* Lacordaire, Erotyl. 225. Middle and Southern States; abundant.

β. Thorax rufus, elytra nigra.

14. T. affinis Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. *Tritoma affinis* Lacord. Erotyl. 224. Georgia and Texas.

15. T. atriventris Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 72. South Carolina to Texas; abundant.

γ. Thorax et elytra concoloria, nigra vel picea.

15. T. erythrocephala Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. *Tritoma erythrocephala* Lac. Erotyl. 226. Southern States.

16. T. angulata Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. *Tritoma angulatum* Say, ibid. 5, 300. *Tritoma flavipes* Lacord. Erotyl. 226. Middle and Southern States.

17. T. brunnea Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. *Tritoma brunnea* Lacord. Erotyl. 222. New York.

18. T. unicolor Lec. Journ. Acad. Nat. Sc. 2d ser. 1, 71. *Tritoma unicolor* Say, ibid. 4, 300. Lacord. Erotyl. 220. Middle and Southern States; abundant.

19. T. livida Lec, Journ. Acad. Nat. Sc. 2d ser. 1, 71. *Tritoma livida* Lacord. Erotyl. 227. I have never seen this species.

EROTYLUS Fabr.

1. E. Boisduvalii Lacord. Erotyl. 466. A large number of this species were collected by Mr. Fendler, near Santa Fe, in New Mexico.

2. E. californicus Lacord. Erotyl. 467. Unknown to me; said to be from Southern California.

The Committee on Messrs. Evans and Shumard's papers, read June 20th and August 1st, 1854, reported in favor of publication in the Proceedings.

Descriptions of new fossil species from the Cretaceous Formation of Sage Creek, Nebraska, collected by the North Pacific Railroad Expedition, under Gov. J. J. Stevens.

By JOHN EVANS, M. D., and B. F. SHUMARD, M. D.

Avicula triangularis. (Nov. sp.)

Shell small, thin, sub-ovate, length and breadth nearly equal, anterior extremity pointed, expanding rapidly towards the posterior extremity, which is rounded below the wing; wing small, triangular; umbones inflated; beaks pointed and nearly terminal, hinge margin with a well defined furrow running its entire length; surface with rounded, concentric slightly elevated ribs, crossed by indistinct, radiating striæ.

Locality.—Cretaceous formation, Sage Creek, Nebraska. The pearly nacre is finely preserved in all the specimens of this shell that we have seen, forming an elegant contrast with the dark hue of the matrix.

Avicula linguæformis. (Nov. sp.)

Syn.—AVICULA —— *undet.* Owen, Final Rep. Geol. Iowa, Wisconsin and Minnesota, tab. vii. fig. 10.

Shell very oblique, elongated, linguæform, moderately convex; surface smooth; cardinal line straight, about equal to the greatest width of the shell; posterior wing triangular, acute, anterior wing triangular, separated from the body of the shell, by the continuation of a shallow groove which surrounds its most gibbous portion; posterior edge sigmoid, forming an obtuse angle with the cardinal margin; anterior and basal edges convex; beaks pointed, projecting a little above the cardinal border, situated about one-fourth the length of cardinal line from the anterior extremity. The mould of the shell exhibits a line of small tubercles, commencing at the point of the beak and extending in a curve to the base of the posterior muscular impression; the latter is very large and somewhat reniform.

Length one inch, width at cardinal border 10 lines, length from extremity of anterior wing to posterior inferior extremity 19 lines.

This species is rather common in the septaria of the cretaceous group at Sage Creek, Nebraska, but perfect specimens are procured with difficulty.

Solarium flexistriatum. (Nov. sp.)

Shell small, discoidal, depressed, convex, terminating exteriorly in a sharp cutting edge; volutions four or five; spire very slightly elevated, inner edge of volutions bounded by a row of tubercles; surface marked by fine revolving thread-like striæ, which are crossed by fine flexuous striæ, giving an exceedingly neat reticulated appearance to the shell. Umbilicus large; mouth sub-quadrangular.

Dimensions.—Width, 3½ lines; height, 1½ lines.

This pretty shell occurs quite abundantly in septaria of the cretaceous formation of Sage Creek, Nebraska.

Mytilus Galpinianus. (Nov. sp.)

Shell sub-ovate, arcuate, inflated, surface smooth, or marked only by five indistinct concentric lines of growth; umbones prominent, rounded, anterior side short; beaks nearly terminal, muscular impression small, placed near the anterior extremity; posterior side broad, extremity rounded.

Dimensions.—Length 7.5 lines, width 15 lines, thickness 6 lines. The only specimen we have of this species is partly denuded of its shell, so that some of the characters above given may have to be slightly modified, when more perfect specimens are obtained for examination.

Locality.—Fox Hills, Nebraska. For this species we are indebted to the politeness of Mr. Galpin, agent of the Amer. Fur Co., in charge of Fort Pierre Chouteau, and to him it gives us pleasure to dedicate it.

Pholadomya elegantula. (Nov. sp.)

Shell sub-ovate, transverse, inflated; anterior side short, rounded; posterior side elongated, gaping; basal margin regularly rounded; ligament margin arcuate; umbones prominent; surface marked with about 45 concentric ribs, which increase in width from the beak to the basal margin, becoming nearly obsolete posteriorly; these are crossed by about 25 radiating granular ribs, close together on the middle portion of the shell, the intervals increasing in width towards the anterior and posterior borders.

Dimensions.—Length 18 lines, width 22 lines, thickness 1 inch.

Locality.—It occurs in septaria of the cretaceous group at Sage Creek, Nebraska, associated with *Ammonites Oweni*, *Scaphites nodosus* and *Inoceramus Sagensis*.

Rostellaria Nebrascensis. (Nov. sp.)

Shell elongate, conical; whorls about eight, convex, body whorl with two well rounded keels; lip prolonged transversely, terminating in a sharp point; all the volutions ornamented with transverse revolving thread-like striæ, which are crossed longitudinally by prominent flexuous ribs.

It occurs with the preceding species at Sage Creek, Nebraska.

Descriptions of new fossil species from the fresh water Tertiary Formation of Nebraska, collected by the North Pacific Railroad Expedition, under Gov. J. J. Stevens.

By JOHN EVANS, M. D., and B. F. SHUMARD, M. D.

The organic remains which form the subject of the present communication were obtained from Nebraska Territory, in the vicinity of Peno Creek, a small tributary of Teton or Little Missouri River, about ninety miles from Fort Pierre Chouteau. They occur in great profusion in thin-bedded, light gray, siliceous limestone, near the summit of the elevated plateaux which border the *Mauvaises Terres*. They consist of several species of *Lymnea*, one *Physa*, one *Planorbis*, the seed vessels of a species of *Chara* and the carapaces of a minute *Cypris*. These genera at once establish the lacustrine character of the deposit in which they occur. The fossils are beautifully preserved, and project in fine relief from the weathered surfaces of the limestone. Many of them have been converted into semi-transparent chalcedony. They are of considerable interest, from the fact, that the strata in which they are imbedded, repose on the tertiary marls and clays, which have yielded those magnificent collections of extinct mammalian and chelonian remains described by Prof. J. Leidy, in his recent very valuable memoirs, published in Dr. Owen's Final Report on the Geology of Iowa, Wisconsin and Minnesota, the Smithsonian Contributions, and in the Proceedings of the Academy of Natural Sciences.

PLANORBIS NEBRASCENSIS. (Nov. sp.)

Shell small, depressed, discoidal, above moderately concave; volutions about four, rounded, obtusely carinated; below rounded, umbilicus small, exhibiting the volutions to the apex of the spire, suture distinct; body whorl with an obtuse

dorsal carina, aperture sub-trigonal, surface marked with delicate, arched striæ of growth.

Width, 2½ lines; height ½ of a line.

Occurs very abundantly.

LYMNEA DIAPHANA. (Nov. sp.)

Shell small, oblong, ovate-conic; whorls fine, convex, crossed by delicate lines of growth, spire short, acute at apex; aperture oval, slightly dilated, rather larger than half the length of the shell; columella rather delicate and sinuate, umbilicus minute.

Length, 2½ lines; width, 1½ lines; length of aperture, 1½ lines.

Very common.

LYMNEA NEBRASCENSIS. (Nov. sp.)

Shell ovate, sub-conic, volutions five, convex, crossed by minute, elevated lines of growth; body whorl ventricose, more than twice the length of spire; spire short, apex pointed, suture not deeply impressed; lip produced in front.

Length, 5½ lines; length of body whorl, 4 lines; width about 2½ lines.

All the specimens in our possession are very much compressed, and otherwise mutilated, so that the form and character of the aperture cannot be determined. It is very similar to the preceding species, from which it is distinguished by its greater size and its numerous crowded striæ.

PHYSA SECALINA. (Nov. sp.)

Shell small, thin, oblong-oval; volutions four, evenly convex, smooth or with very fine lines of growth; aperture ovate, narrow, more than equal to the entire length of the shell; spire short, slightly rounded at summit, suture distinct but slightly impressed.

Length, 2½ lines; width, 1½ lines.

Only two specimens of this little shell have come under our observation, and these rather imperfect.

CYPRIS LEIDYI. (Nov. sp.)

Carapace minute, reniform, vertical section sub-cordate, width of extremities nearly equal; central and anterior portions of surface very convex, the convexity diminishing towards the posterior end; ventral margin straight or very slightly concave, about one third shorter than the entire length of the valves; dorsal and lateral margins convex, encircled by a well defined, narrow groove, which terminates at the ventral margin; surface covered with exceedingly minute granulæ.

Length, ½ of a line; width, ½; thickness, 2-5th.

A close examination of the slabs of fresh water limestone from the vicinity of Pyne Creek, has resulted in the discovery of this pretty little crustacean. The substance of the fossil is nearly transparent chalcedony, and the valves in both specimens remain attached in their normal position.

Named in honor of Prof. Joseph Leidy, whose valuable researches have contributed so largely to our knowledge of the fossil fauna of Nebraska.

The Committee on Dr. Hallowell's paper, entitled, "Contributions to South American Herpetology," reported in favor of publication in the Journal.

ELECTION.

Mr. Joseph Harrison and Garrick Mallery, Esq., of Philadelphia, were elected *Members;* and Dr. Wm. E. Dearing, of Augusta, Georgia, was elected a *Correspondent.*

Sixty-Seventh Annual Report of the Regents of the University of the State of New York. 8vo. From the Regents.

Geometrical measurement of the distances from crest to crest of the Barometric Waves in a Cyclone. By H. Piddington. From the Author.

Bulletin de la Societé Impériale des Naturalistes de Moscou. 1852, Nos. 3 and 4; 1853, Nos. 1 and 2. From the Society.

Kongl. Vetenskaps-Akademiens Handlingar för Ar. 1851. 8vo. From the Academy.

Ofversigt af K. Vetenskaps.Akad. Förhandlingar 1852. 8vo. From the same.

Denkschriften der K. Akad. der Wissen. Mathemat-Naturwissen. classe. 5 band. 1ste lief. 4to. From the Academy.

Zeitschrift der Deutschen geologischen Gesellschaft. 5 band, 3 heft. 8vo. From the Society.

Jahrbuch der k. k. Geologischen Reichenstalt 1853, 4 Jahr. No. 2. From the Institute.

Sitzungsberichte der k. Akad. der Wissen. Mathemat-Naturwissen. classe. Band 9, heft 3, 4, 5. Band 10, heft 1, 2, 3. Band 11, heft 1, 2. 8vo. From the Academy.

Kleinere Schriften von Alex. von Humboldt. 1er band. Geognostische und physikalische Erinnerungen. 8vo. and Atlas. From the Author.

De Anatomia Corvorum. Pars 1ma. Osteologia. Auctor H. A. Bernstein. 8vo. From the Prince de Wied.

May 23d.

Descriptions of new fluviatile Shells of the United States. By J. G. Anthony. From the Author.

Remarks on some Fossil Impressions in the Sandstone Rocks of Connecticut River. By J. C. Warren, M.D. 8vo. From the Author.

Charleston Medical Journal and Review for May, 1854. From the Editors.

New Orleans Medical and Surgical Journal for May, 1854. From the Editors.

Genera des Coléoptères. Par M. Th. Lacordaire. Tome 1er. 8vo. From the Author.

Archives de Physiologie, de Therapeutique et d'Hygiène, sous la direction de M. Bouchardat. No. 1, Jan., 1854. Memoire sur la Digitaline et la Digitale. Par E. Homolle et T. A. Quevenne. From M. Quevenne.

Beiträge zur gesammten Natur-und Heilwissenschaft; herausg. von Dr. W. H. Weitenweber. Vols. 1, 2, 3, and Nos. 1, 2, Vol. 4. 8vo. From Dr. Weitenweber.

Der Arabische Kaffee. Von Dr. W. Weitenweber. 8vo. From the Author.

Denkschrift über August Joseph Corda's Leben und literärisches Werken. Von W. H. Weitenweber. From the same.

Dr. J. C. E. Hoser's Rückblicke auf sein Leben und Werken. Von Dr. Weitenweber. From the same.

Aus den Leben und Werken des Hern Dr. J. Th. Held's. Von Dr. Weitenweber. From the same.

June 6th.

Württembergische naturwissenschaftliche Jahreshefte. 1854, No. 2 and Atlas. From the Association.

Denkschriften der. k. Akad. der Wissenschaften. Mathemat-naturwissen. classe. 6 band. 4to. From the Academy.

Sitzungsberichte der k. Akad. der Wissen. Mathemat-naturwissen. classe. Band 11, heft 3, 4. 8vo. From the same.

Archiv für Naturgeschichte. Herausg. von Dr. F. H. Troschel. 1851, No. 6; 1852, Nos. 3, 4, 5; 1853, Nos. 1, 2. 8vo. From Dr. Troschel.

Ueber die Werthbestimmung Zoologische Merkmale. Von J. Victor Carus. From the Author.

Bericht über die Verhandelungen der k. Sächsischen Gesellschaft der Wissen. zu Leipzig. Mathemat. phys. classe. From the Society.

Ueber die bestimmung der Massen und der Tragheitsmomente symmetrischen rotationskörper von Ungleichförmiger dichtigkeit. Von O. Schlömilch. From the same.

Ueber einige Allgemeine Reihenentwickelungen und deren Anwendung auf die Elliptischen Funktionen. Von O. Schlömilch. From the same.

Belfast Natural History and Philosophical Society. (Proceedings for 1852, '53 and part of 1854.) From the Society.

On the Albert Mine, Hillsboro', N. B. By J. W. Dawson, of Pictou, N. S. From the Author.

On the Coal Measures of the South Joggins, N. S. By J. W. Dawson. From the same.

Annual Report of the Trustees of the New York State Library, March, 1854. From the Trustees.

History of Vermont, natural, civil and statistical. By Zadock Thompson. 8vo. From the Author.

Report of an Expedition down the Zuni and Colorado Rivers. By Capt. L. Sitgreaves. 8vo. From Col. J. J. Abert.

Notes and Commentaries during a voyage to Brazil and China in 1848. By W. S. W. Ruschenberger. 8vo. From the Author.

The Principles of Botany, as exemplified in the Phanerogamia. By Harland Coultas. 8vo. From the Author.

An additional collection of Autographs of distinguished scientific men. From Dr. John Torrey.

Odontographie. Vergleichende Darstellung des Zahnsystemes der lebenden und fossilen Wirbelthiere. Von C. G. Giebel. 5 lief, 4to. From Dr. Wilson.

Die Wichtigsten formen des Thierreichs. Von Dr. Hermann Pompper. Folio. From the same.

Comptes Rendus. Tome 38, Nos. 14—18. From the same.

London Athenæum for April, 1854. From the same.

Annales de la Société Entomologique de France, 1853, No. 4. 8vo. From the same.

June 20th.

Natural History of the Red River of Louisiana, (reprinted from the Report of Capt. Marcy.)

Descriptions of new genera and species of North American Frogs. By S. F. Baird. From the Author.

Descriptions of new species of Fishes from Texas, New Mexico and Sonora. By S. F. Baird and C. Girard. From the Authors.

Descriptions of new species of Reptiles, collected by the U. S. Expl. Exp., Capt. Wilkes. By Chas. Girard. From the Author.

Virginia Medical and Surgical Journal, No. 14. From the Editors.

Einige Beobachtungen über Clymenien; mit besonderer Rücksicht auf die Westphälischen Arten. Von Dr. Guido Sandberger in Wiesbaden. From the Author, through Dr. Genth.

Dr. Wilson presented the following on the usual condition:

Comptes Rendus. Tome 38, Nos. 19 and 20.

London Athenæum for May, 1854.

Journal of the Franklin Institute for June, 1854.

Malakozoologische Blätter für 1854.

Nouv. Suites à Buffon. Erpétologie générale, ou hist. nat. des Reptiles. Tome 7, 1me partie. Par MM. Dumeril et Bibron. 8vo.

Notice historique de la Menagerie des Reptiles du Museum d'hist. nat., et observations qui y'ont été recueillies par le Dr. A. Dumeril.

September 5th, 1854.

DR. RUSCHENBERGER in the Chair.

A letter was read from Mr. Sandwith Drinker, dated Canton, June 17, 1854, giving notice of his having transmitted several objects of Natural History for the Museum of the Academy.

A communication was read, entitled "Description of some new Fossils from the cretaceous rocks of the Southern States, by M. Tuomey;" which, being intended for publication in the Proceedings, was referred to Dr. Leidy, Mr. Conrad and Dr. LeConte.

Dr. Leidy read a paper intended for publication in the Proceedings, entitled "Description of a fossil apparently indicating an extinct species of the Camel tribe." Referred to Mr. Cassin, Dr. J. A. Meigs and Mr. Phillips.

September 12th.

Vice President LEA in the Chair.

A letter was read from the Rev. Dr. J. L. Wilson, dated New York, Sept. 11, 1854, expressing his readiness to procure for the Academy a specimen, in skin, of Troglodytes gorilla, from Africa.

Also a letter from the Lyceum of Natural History of New York, dated September 14, 1854, acknowledging the receipt of the Proceedings, Vol. 7, Nos. 2 and 3, and Journal, Vol. 2, part 4.

September 26th.

MR. ORD, President, in the Chair.

The Committees on papers by Mr. Tuomey and Dr. Leidy, read 4th inst., reported in favor of publication in the Proceedings.

Description of some new Fossils, from the Cretaceous Rocks of the Southern States.

By M. TUOMEY.

The following brief characters are given in advance of more full descriptions, with figures, that may follow hereafter.

CEPHALOPODA.

1. NAUTILUS.

1. *Nautilus Spillmani.* Shell depressed vertically, umbilicated; last chamber large, inflated, spreading, emarginated, flattened beneath.

The depressed and inflated form of this fossil sufficiently distinguishes it from every other species of the genus in our cretaceous rocks.

Inscribed to Dr. Spillman, of Columbus, Miss.

Locality, Mississippi. Dr. Spillman.

2. *N. orbiculatus.* Shell somewhat discoid, thick in the centre and gradually thinner towards the circumference; last chamber very large, spreading at the

umbilicus; siphunculus nearly central; septa profoundly undulating, showing on the back a sharp recurved lip.

This is the largest of the genus found in our rocks, being ten inches in diameter. It resembles quite closely *N. Danicus*, especially in the undulations of the septa.

Locality, Alabama.

3. *N. angulatus*. Shell with the septa regularly curved; emarginated; medium space wide, flat, obtusely angular; siphunculus large, situated towards the inner margin of the chamber; aperture very wide.

Readily distinguished from *N. Dekayi*, which it resembles, by the angles on the back, and flat median space.

Locality, Mississippi.

2. AMMONITES.

1. *Ammonites magnificus*. Shell compressed, broadly oval; whorls rapidly decreasing in size, crossed by coarse nodose ribs; nodes at each extremity of the ribs, the outer nodes compressed and arranged on each side of the convex median space; septa not greatly ramified, dorsal lobe deeply bifurcated.

Bears some resemblance to *A. Delawarensis*, but is a very distinct species.

Diameter two feet.

Locality, Pickens county, Alabama.

2. *A. carinatus*. Shell covered with prominent, closely arranged ribs; ribs nodose, a little undulating; nodes in five revolving lines; nodes on each side of the median line compressed; median line carinated; whorls rapidly decreasing in width; aperture ovate.

From the preceding species this is distinguished by its more numerous and closely arranged ribs and numerous nodes.

A cast in calcareous sand, having a portion of the siphunculus beautifully preserved.

Locality, Columbus, Mississippi. Dr. Spillman.

3. *A. binodosus*. Shell undulating with lines of growth; nodes in two revolving lines, equi-distant from the sides of the whorls, inner line more prominent; median space narrow, flat; aperture elliptic.

This very distinct species has a considerable part of the shell remaining completely silicified.

The narrow, flat median space, the absence of ribs, and two distinct rows of nodes, separate this from its congeners.

Locality, Vance's Ferry, Alabama.

4. *A. lobata*. Shell discoid, smooth, thin towards the circumference; dorsal lobe finely serrate; lateral lobes terminating in large bilobed cells.

This fossil, of which I have only a fragment, resembles *A. placenta*, but is distinguished from it by the remarkable cells that terminate the lateral lobes.

Locality, Noxubie county, Mississippi. Mr. Richardson.

5. *A. ramosissimus*. Shell remotely ribbed, slightly nodose; median line compressed; septa profusely foliated, aperture oval.

The fragments of this fossil in our possession are at once recognised by the very numerous subdivisions of the lateral lobes of the septa, which cover the entire surface.

Locality, Sumter county, Alabama.

6. *A. angustus*. Shell with the whorls compressed crossed by distinct somewhat nodose ribs, each terminating in a robust knob, outside of which is a serie of compressed tubercles; median space narrow and carinated.

Locality, Columbus, Mississippi. Dr. Spillman.

3. TURRILITES.

1. *T. alternatus*. Shell turreted, spire dextral; whorls angulated, lower side ornamented by two tuberculated carinæ, transversely plaited; plaits double the number of tubercles, alternately terminating in a tubercle.

Two fragments of this fossil have been found. Portions of the nacreous part of the shell remain, and show distinctly the deeply foliated margins of the septa.

This is the first notice of the occurrence of the genus *Turrulites* in the cretaceous rocks of the United States.

Locality, Noxubie county, Mississippi. L. C. Richardson, Esq.

GASTEROPODA.

1. Turritella.

1. *T. fastigiata.* Shell regularly tapering; whorls somewhat flat, slightly indented by a revolving line; suture impressed; body whorl angular below; aperture round.

Locality.—Noxubie county, Mississippi. Mr. Richardson.

2. Phorus.

1. *P. umbilicatus.* Shell depressed; whorls four, uneven, concave below; suture profound (in the cast); umbilicus deep, surrounded by a channel.

Distinguished from *Phorus* (*Trochus*) *leprosus* by the channelled umbilicus.

Diameter, 1.75 in.

Locality, Noxubie county, Mississippi. Mr. Richardson.

3. Voluta.

1. *V. cancellata.* Shell fusiform; whorls cancellated by close vertical ribs, and oblique revolving lines; ribs obsolete towards the base.

Locality, Noxubie county, Mississippi. Mr. Richardson.

2. *V. jugosa.* Shell fusiform; body whorl large; whorls few; suture slightly carinated; suture shell ridged or ribbed vertically.

Distinguished by the coarse ribs from the other cretaceous species.

Locality, Noxubie county, Mississippi. Mr. Richardson.

3. *V. Spillmanii.* Shell fusiform; body whorl large; whorls four, obsoletely ribbed; suture carinated; base with numerous revolving lines.

Locality, Columbus, Mississippi. Dr. Spillman.

4. *V. fusiformis.* Shell fusiform; body whorl undulating, smooth; suture not impressed; lip turned up (in the cast) at the upper edge of the aperture.

A well marked fossil; the casts are remarkable for the undulations on the last whorl.

4. Fusus.

1. *F. eufaulensis.* Shell ovate: spire about half the length of the shell; whorls five, somewhat carinated on the shoulder; marked by vertical slightly curved ribs, terminating at the carina in obsolete nodes; suture impressed; body whorl and aperture large; canal abruptly bent.

Locality, Eufaula, Alabama. Mr. Thornton.

2. *F. turriculus.* Shell fusiform, gently tapering; whorls convex, crossed by vertical ribs; body whorl small; aperture ovate, small; canal abrupt.

Distinguished by the small size of the body whorl.

Locality, Columbus. Dr. Spillman.

5. Pyrula.

1. *P. trochiformis.* Shell top-shaped; body whorl large, inflated, covered with revolving raised lines; spire depressed, not flat; angle of the body whorl rounded; canal produced; aperture nearly circular.

Locality, Noxubie county, Mississippi. Mr. Richardson.

2. *P. Richardsonii.* Shell top-shaped; spire depressed, almost flat; body whorl angular, terminating suddenly in a canal.

Inscribed to L. C. Richardson, Esq., as a mark of respect for his zeal in investigating the geology of Noxubie county.

Locality, Noxubie county, Mississippi. Mr. Richardson.

6. CERITHIUM.

1. *C. nodosus.* Shell turrited; whorls six, convex, crossed by distant, strong ribs, swelled into nodes on the middle of the whorls; body whorl with revolving impressed lines below.
Locality, Alabama.

LAMELLIBRANCHIA.

1. TEREDO.

1. *T. calamus.* Shell thin, cylindrical, transversely wrinkled, large.
Diameter, 0.5 in.
Locality, Columbus, Mississippi. Dr. Spillman.

2. PANOPÆA.

1. *P. cretacea.* Shell oblong; buccal side shorter, slightly cuneate, rounded; anal side undulating, gaping.
Length, 1.5 in.
The only species known in our cretaceous rocks.

3. PHOLADOMYA.

1. *P. tenua.* Shell thin, oblong, somewhat inflated, radically ribbed; ribs obsolete on the anal side; umbones prominent.
Length, 1 inch.

4. CORBULA.

1. *C. caudata.* Shell oblong; somewhat equivalve, inflated, concentrically striate; buccal side broadly rounded; anal side abruptly contracted and produced; umbones incurved, not opposite.
Locality, Noxubie. Mr. Richardson.

5. CARDIUM.

1. *C. hemicyclicus.* Shell thin, very inequilateral, radically ribbed; ribs numerous, umbones somewhat depressed.
Distinguished from our other species by the inequilateral valves.
Locality, Alabama.

6. ARCA.

1. *A. (Cucullæa) ungula.* Shell cordate, inflated, short, thickness greater than the length or height; ligament area very wide; umbones incurved, distant.
Locality, Alabama.

7. INOCERAMUS.

1. *I. biformis.* Shell thin, compressed, umbonial portion with regular concentric folds or undulations, and fine striæ; paleal region smooth, without undulations, covered with very regular, closely arranged, impressed concentric lines.
This is the largest of our species, being one foot in diameter. Resembles *I. Nebrascensis,* Owen; but is distinguished from it by the greater fliguity of the folds, and by the close, regular lines.
Locality, Cahawba, Alabama.

2. *I. gibbus.*
Syn.—*I. Barabini,* Mort. var.
Shell very thin, somewhat inequivalve, semicircular, convex; concentrically plaited, plaits irregular; hinge line straight.
A fragment of this species is figured in the "Synopsis," as a variety of *I. Barabini,* but *I. Barabini* belongs to a division of the genus that has the valves nearly equilateral.

3. *I. salebrosus*. Shell semicircular, with oblique concentric ribs; ribs remote, irregular, undulating, acute.

Distinguished from the other species by the coarse, sharp ribs.

Locality, Cahawba, Alabama.

4. *I. inflatus*. Shell semicircular, somewhat equivalve, surface undulating; ribs oblique, very irregular, almost obsolete; beaks distant, buccal side inflated; anal side compressed, with a broad shallow channel in each valve.

Locality, Columbus, Mississippi. Dr. Spillman.

5. *I. triangularis*. Shell somewhat trigonal, nearly equilateral; with concentric transverse undulations or ribs, buccal side somewhat carinated; beaks compressed, slightly recurved.

Locality, Columbus, Mississippi. Dr. Spillman.

6. *I. proximus*. Shell compressed, inequilateral; ribs concentric, regularly curved, approximating.

The closely arranged ribs characterises this species.

Locality, Columbus, Mississippi. Dr. Spillman.

Ostrea.

1. *O. crenulata*. Shell subfalcate, lower valve with closely plaited squamose ridges; upper valve convex, with smooth plates; ligament area long, triangular; margin crenulated.

Resembles the young of *O. sellæformis*, and having often the habit of *O. equestris*, being attached to branches of corals, etc., by the entire length of the lower valve.

Length 1.5 in.

Locality, Eufaula, Alabama. Mr. Thornton.

RUDISTES.

Mr. Lyell was the first to point out the existence of this curious family, in the cretaceous rocks of the United States.

The fragments then known were referred to the genus Hippurites. From that time to the present I have endeavored, with the assistance of many friends, to collect the fragments of Rudistes, scattered over the prairie region of Alabama and Mississippi. The result has been the determination of two genera and seven species, and, what is remarkable, not a single fragment that could be referred to the well marked genus Hippurites has as yet been found.

Without figures it is not easy to give characteristics of the species of a family, the remains of which are so badly preserved. The following, however, may serve for the present.

Radiolites, Lam.

Sphærulutes, Delam.

1. *R. Ormondii*. Shell, lower valve comperatively thin, long, lamellæ angular; lip turned upwards at the outer circumference; ramifications of the mantle slightly impressed on the lip; cells small; outer surface ornamented with vertical ridges composed of the zigzag edges of the leaves composing the shell; inner surface smooth, with a thin plate extending a short distance into the aperture.

Distinguished by the thinness of the shell and ornamented exterior. The fluting and apparent joints of the outer surface suggest, at first sight, a fragment of a fossil plant.

Inscribed to my friend, Dr. John Ormond, of Tuscaloosa, who discovered this interesting species.

Locality, Marengo county, Alabama.

2. *R. lamellosis*. Shell, lower valve thick, conical, large; lip nearly horizontal, or slightly depressed towards the circumference, with radiating smooth ridges, more numerous towards the outer circumference; outer edge slightly and

abruptly turned up; exterior surface with vertical impressed lines corresponding with the ridges on the lip; cirri or ramifications of the mantle impressed, dichotomously branching; cells towards the circumference compressed lengthwise.

The numerous radiating ridges on the lip are characteristic of this species.

Locality, Lowndes county, Alabama.

3. *R. Aimesii.* Shell, lower valve large, conical, very thick; lip slightly convex, with narrow, radiating depressions towards the inner circumference, outer edge slightly plaited, with obsolete concentric undulating lines; outer surface striate.

Inscribed to Dr. Aimes, of Montgomery, to whose kindness I owe this fine fossil.

Locality, Alabama.

4. *R. undulata.* Shell, lower valve thick; lip bent slightly upwards, with distant, obtuse radiating ridges, or undulations, and obsolete radiating lines; cirri of the mantle well defined.

Locality, Marengo county, Alabama.

ICHTHIOSARCOLITES, Desmarest.

Caprinella, d'Orb.

1. *I. quadrangularis.* Shell quadrangular, curved, irregular; septa somewhat regular, abruptly bent downwards, and approximating in the channel on the inner surface of the shell; aperture terminating obliquely and rather abruptly.

Locality, Noxubie county, Mississippi. Mr. Richardson.

2. *I. lorieatis.* Shell, aperture somewhat oval, irregular, obtusely rounded at the base, giving the cast an imbricated appearance.

Locality, Noxubie county, Mississippi. Mr. Richardson.

3. *I. cornutis.* Shell, aperture regularly curved, flattened on one side, septa abruptly bent downwards, and towards the concave side.

Distinguished from the preceding by the more distant and regular septa, and in the greater regularity of the curvature of the shell.

Locality, Noxubie county, Mississippi. Mr. Richardson.

I have thought proper to restore Desmarest's uncouth name, rather than violate the rule of priority.

Description of a fossil apparently indicating an extinct species of the Camel tribe.

By JOSEPH LEIDY, M.D.

Mr. Henry Pratten, of New Harmony, Indiana, has sent for my inspection, and as a donation to our Academy, an interesting fossil, which he discovered in the gravel drift of Kansas territory.

The specimen consists of the left intermaxillary bone, containing the fang of a tooth, and a small portion of the corresponding maxillary bone.

The fang of the tooth is the portion of a transformed incisor or functional canine, like that in the Camel and Lama. The crown of the tooth was directed more outwardly than in either of the latter; but it had the same form, being laterally compressed, obtuse anteriorly and acute posteriorly. At the point of emergence from its alveolus the crown measured 6½ lines antero-posteriorly and 3½ lines transversely. Its enamel is thin, and appears to have been smooth. The fang is laterally compressed, conical, and measures an inch and a half in length; and it is strongly curved backward and downward, and is almost parallel with the palatal margin, so that its extremity is only seven lines above the latter.

The intermaxillary bone is relatively larger and more robust than in the Camel or Lama, and it is broader and more convex above. Its nasal border is

more obtuse and very much less inclined, so as apparently to indicate a longer snout in the extinct animal. The anterior or gingeval border is thick and rough as in other ruminants.

The small portion of the maxillary bone presents the remains of an alveolus, separated from the tooth of the intermaxillary by an interval, with a curved, acute margin, an inch and three-quarters long. The great distance of this alveolus from the tooth in advance, when compared with the condition of things in the Camel and Lama, arises from the great degree of extension backward and near the palate of the fang of the first functional canine.

The maxillo-intermaxillary suture, at the side of the fossil, descends, as usual, parallel with the nasal border of the intermaxillary bone, and, after reaching the palatal surface is directed in a curved line forward and inward, reaching as far as the posterior third of the position of the first tooth.

From this description it is evident the fossil indicates a distinct species of the camel tribe, and as it appears generically distant from the Camel and Lama, the name of *Camelops Kansanus* would not be inappropriate for it.

ELECTION.

Dr. Isaac A. Pennypacker, and Emile Geylin, Esq., of Philadelphia, and Eugene Borda, Esq., of Schuylkill Co., Pa., were elected *Members;* and Dr. Hiram A. Prout, of St. Louis, and Mr. Henry Pratten, of New Harmony, Indiana, were elected *Correspondents.*

October 3d.

Vice President LEA in the Chair.

A paper was presented by Mr. James D. Dana, intended for publication in the Proceedings, entitled "Catalogue and descriptions of Crustacea collected in California by John Le Conte, M.D.," which was referred to Dr. Le Conte, Dr. Bridges and Prof. Haldeman.

October 10th.

Vice-President BRIDGES in the Chair.

Letters were read:—

From the Trustees of the New York State Library, dated Albany, October 7, 1854, acknowledging the receipt of the last No. of the Proceedings.

From the California Academy of Natural Sciences, dated San Francisco, Sept. 22, 1854, transmitting the first No. of the Bulletin of that Society, and requesting exchange.

Mr. Cassin presented a paper for publication, entitled "Additions to North American Ornithology, by A. L. Heermann, M.D." Referred to Mr. Cassin, Col. McCall and Dr. Wilson.

October 17th.

The President, Mr. ORD, in the Chair.

A letter was read from the Lyceum of Natural History of New York, dated October 10, 1854, acknowledging the receipt of the Proceedings of the Academy, vol. 7, No. 4.

Also a note from Prof. Dunglison, dated Philadelphia, October 9, 1854, transmitting the donations to the library from Prof. Brücke, of Vienna, announced this evening.

The following papers intended for publication in the Journal, were presented, viz., "Descriptions of Fishes of South Carolina, by J. E. Holbrook, M. D." Referred to Dr. Hallowell, Mr. Vaux, and Mr. Cassin.

"Plantæ Heermannianæ Californicæ; descriptions of New Plants collected in South California, by Dr. A. L. Heermann, Naturalist attached to the survey of the Pacific R. R. route, under Lieut. R. J. Williamson, U. S. A.; with remarks on other plants, heretofore described, belonging to the same collection. By E. Durand and Theodore Hilgard, M. D." Referred to Maj. Le Conte, Dr. Bridges and Dr. Zantzinger.

The following papers intended for publication in the Proceedings, were presented:

"Observations on the Vespertilio leporinus, Linn., by John Le Conte;" and

"Descriptions of four new species of Kinosternum, by John Le Conte;" both of which were referred to Dr. Bridges, Mr. Cassin and Col. McCall.

"On Urnatella gracilis, and a new species of Plumatella, by Joseph Leidy, M. D." Referred to Dr. Bridges, Dr. Zantzinger and Dr. Rand.

"Notices of new Reptiles from Texas, by Edward Hallowell, M.D." Referred to Dr. Le Conte, Dr. Leidy, and Col. McCall.

October 24th.

Vice-President BRIDGES in the Chair.

A letter was read from Mr. S. Drincker, dated Canton, May 24th, 1854, transmitting donations to the Museum of the Academy.

A letter from Mr. Henry Pratten, dated New Harmony, Indiana, Oct. 14, 1854, acknowledging the receipt of his notice of election as a Correspondent.

A letter from Prof. J. P. Kirtland, dated East Rockport, Ohio, transmitting a collection of Reptiles from that State.

A letter from the Royal Academy of Sciences of Belgium, dated Brussels, 12th October, 1854, acknowledging the receipt of late Nos. of the Proceedings and Journal.

Mr. Joseph Jones, of Georgia, read a paper, intended for publication in the Proceedings, entitled: "Abstract of experiments upon the physical influences exerted by living organic and inorganic membranes upon chemical substances passing through them by endosmosis," which was referred to Dr. Leidy, Dr. Carson and Dr. Bridges.

Major Le Conte stated that having visited, during the last spring, an island on the coast of Georgia, known as Colonel's Island, he had been enabled to procure from the original locality authentic specimens of *Magnolia pyramidata*, mentioned in Bartram Travels, p. 5. On comparison with other specimens, he is convinced that it is merely a variety of *M. grandiflora*; which varies in the

form of its leaves from a regular elliptic form to ovato-lanceolate. The dimensions of the leaves from Colonel's Island are 11½ inches long and 2½ wide.

Those from other localities are,

Of the elliptic form, transverse diameter, 7 inches,
" conjugate, 4 inches.
" ovato-lanceolate 7½ long, 3½ wide.

Regular gradations may be found between these various forms. The opinion expressed by Elliot that *M. pyramidata* is a variety of *M. auriculata* is therefore erroneous. Major Le Conte also stated, that he had been personally informed by Mr. Bartram that his *M. pyramidata* had lanceolate leaves.

October 31st.

Mr. ORD, President, in the Chair.

The Committees to which were referred papers by Mr. Dana, read October 3d; by Dr. Heermann, read Oct. 10th; by Major Le Conte, read Oct. 17th; by Dr. Leidy, read Oct. 17th; by Dr. Hallowell, read Oct. 17th; severally reported in favor of publication in the Proceedings.

Catalogue and descriptions of Crustacea collected in California by Dr. John L. Le Conte.

By JAMES D. DANA.

1. *Anomoura.*

HIPPA TALPOIDES, Say.

CLIBANARIUS ÆQUALIS, D., Rep. Crust. Exp. Exp., p. 464, pl. 29, f. 4.

This Californian Clibanarius is identical with the Madeira and Cape Verde *C. æquabilis*, a species which is probably identical with one at the island of Tahiti, in the Pacific. See Rep. Crust. loc. cit.

2. *Macroura.*

CALLIANASSA CALIFORNIENSIS, D. Pes grandis superficie lævis; manu ad basin latiore, digito mobili non breviore quam manus dimidium, subuncinato, sparsim hirsuto; carpo superficie laterali nudo, marginibus ciliato, paulo oblongo, parce breviore quam manus, brachio crassiusculo, carpum longitudine fere æquante, infra juxta basin lobum subovatum denticulatumque gerente, articulo precedente infra denticulato. Manus parva angusta, carpo parce brevior.—Long. 2½".

3. *Isopoda.*

IDOTÆA OREGONENSIS, D., Rep. Crust. Exp. Exp. p. 704, pl. 46, f. 6.

This species is named *I. hirtipes* in the author's report, and in the plate referred to; the name is changed to *I. Oregonensis* in the explanation of the plates accompanying the latter, on account of its having been previously used.

IDOTÆA MEDIA, D. *I. Oregonensi* affinis, paulo angustior. Corpus læve, latere paulo arcuatum. Abdomen sesqui longius quam latum, lateribus fere parallelis, apice arcuato-truncato ad medium apiculato. Antennæ externæ tertiâ corporis non longiores, flagello ferme 10–12-articulato, vix breviore quam basis, fere nudo. Pedes fere nudi.—Long. 10‴.

The abdomen is three-jointed, with an additional suture either side of the last segment, as in the *I. Oregonensis*.

STENOSOMA (IDOTÆA) GRACILLIMUM, D. Corpus angustissimum filiforme, segmentis thoracis plerumque subquadratis, capite quadrato. Abdomen lineare, apice truncatum, 3-articulatum, segmento 3-tio utrinque suturâ notato. Pedes

perbreves, subæqui. Antennæ externæ corporis dimidio paulo breviores, flagello 10–12-articulato, breviore quam basis, nudo.—Long. 5½‴.

SPHERILLO AFFINIS, D. Corpus superficie læve et innotatum. Antennæ subtilissime scabriculæ, articulis duobus ultimis conjunctis (6to 7moque) 5to parce brevioribus. Segmentum abdominis ultimum paulo transversum, medio constrictum. Styli caudales lati, latitudine basali non longiores, angulo interno-postiore late excavato, lateribus antico postico et externo fere rectis et inter sese rectangulatis, angulo interno-anteriore truncato, externo-anteriore rotundato, ramo posteriore minuto, parce exserto.—Long. 4½‴.

PORCELLIO GEMMULATUS, D., Rep. Crust. Exp. Exp. p. 725, pl. 47, f. 7.

STYLONISCUS GRACILIS, D. Corpus gracile. Abdomen paulo oblongum, subovatum, thorace postico subito paululo angustius, segmentis 3tio 4to 5toque lunatis. Styli caudalis basis brevis, vix duplo longior quam latus, extus ad medium subito angustior. Antennæ externæ fere nudæ, flagello ferme 14-articulato, nudo, articulos basis duos precedentes longitudine fere æquante.—Long. 5‴.

As in other species of this genus, the outer antennæ have not the double geniculation characterising the Oniscidæ. The surface of the body is smooth; yet there are a few exceedingly minute hairs especially along the posterior margin of the segments of the abdomen. The branches of the caudal stylets in the specimen are mutilated.

Genus ALLONISCUS, D. *Scyphacidis* affinis, extremitate mobili maxillipedis oblongâ et lobatâ, lobis setulosis; antennis externis, non 2-geniculatis. Processus apicalis maxillipedis crasse elongatus. Styli caudales breves, articulo basali ad marginem segmenti abdominis posticum adnato et fere transverso. Antennæ externæ 8-articulatæ. Oculi parvi.

This genus is between Scyphax and Styloniscus in most of its characters. But the apical process of the maxillipeds is large, as in Oniscus. Moreover, the bases of the caudal stylets form a border to the last abdominal segment, so that the apices of the two are brought nearly together.

ALLONISCUS PERCONVEXUS, D. Corpus valde convexum, subtilissime subgranulosum, fere læve. Antennæ externæ subtiliter scabriculæ, articulis tribus ultimis subæquis, articulo precedente non longioribus. Abdomen paulo transversum. Ramus terminalis styli caudalis basi brevior. Pedes infra spinulosi. —Long. 6½‴.

Both the back and the legs in the specimens are brownish black. In some smaller specimens four to five lines long; the color is light brown, mottled with yellowish, and the legs are pale yellowish; the form is a little more slender, and they may probably be a different species. The last three joints of the outer antennæ are not so nearly equal.

LYGIA OCCIDENTALIS, D., Rep. Crust. Exp. Exp., p. 742, pl. 49, f. 7.

ÆGA MICROPTHALMA, D. Oculi subrotundi, parvuli. Corpus superficie nudum, læve. Antennæ externæ longiusculæ, flagello ferme 24-articulato; internæ basi externarum breviores. Pedes fere nudi; antici breves, articulo 4to 5–6 dentibus spiniformibus brevissimis infra armato; 8 postici breves, apice articulorum spinulosi. Abdomen 4-articulatum, segmento postico triangulato apice rotundato et pubescente, lateribus rectiusculis. Styli caudales spinâ tenui et longâ ramis parce breviore ad basin armati; ramis abdomen vix superantibus, breviter ciliatis, interno lato, apice oblique leviter arcuato, externo dimidio angustiore, breviter lanceolato.—Long. 6‴.

The six epimerals either side are large, and excepting the two anterior, they project behind, beyond the segment to which they belong. The eight hinder legs are naked, excepting the spines at apex and one or two sets of minute spines on the under side of some of the joints.

Genus ÆGACYLLA, *Dana*. *Ægæ* affinis. Thoracis segmentum septimum breve et pedibus carens. Oculi permagni. Antennæ, sex pedes antici, stylique caudales ac in *Æga*.

In the only species examined, the abdomen is six-jointed. On either side there are five epimerals distinct, that of the 7th segment being wanting.

Ægacylla Leconтii, D. Corpus læve, nudum. Oculi fere conjuncti. Segmentum abdominis ultimum paulo transversum ad basin latius, apice arcuato-truncatum, nudum. Styli caudales abdomen vix superantes, elongate ciliati; ramo externo lanceolato, interno fere duplo latiore, subovato.—Long. 6½‴.

The second joint of the superior antennæ has a process at its apex nearly as long as the following joint, and these antennæ are shorter than the base of the inferior antennæ; the flagellum is about 7-jointed. The flagellum of the inferior pair is about 10-jointed.

Spherona oregonensis, D., Rep. Crust. Exp. Exp. p. 778, pl. 52, f. 4.

4. *Amphipoda.*

Orchestia Pickeringii, D., Rep. Crust. Exp. Exp. p. 882, pl. 59, f. 9.

Orchestia Californiensis, D. Oculi majusculi. Antennæ 1mæ perbreves; 2dæ crassæ, dimidio corporis multo longiores, marginibus subtilissime setulosæ; flagello parce longiore quam articulum precedens, depresso, ferme 18 articulato, articulis non oblongis, partim transversis. Pes 1mus articulo 4to angusto, infra unâ spinâ armato; 5to angusto, breviore, processu parvo infra armato, apice oblique truncato; ungui brevi, vix digitiformi. Manus 2da grandis, subovata, infra palmâ subexcavatâ, spinam versus apicem acutam gerente, digito sat longo. Pedes sex postici spinulis brevibus multis ornati.—Long. 7‴.

The 7th pair of legs is but little longer than the 6th, and much longer than the 5th.

Allorchestes angustus, D. Epimeræ perlatæ, 4tâ multo latiore quam longa, 5tâ angustâ subæque bilobatâ. Pedes 1mi debiles, manu paulo oblongâ, apice truncatâ, palmâ terminali bilobatâ, carpo subtriangulato. Manus secunda, subovata, palmâ rectiusculâ, inermi, parce pubescente; carpus brevis, processu tenui infra prolongatus. Pedes sequentes nudiusculi, marginibus articulorum postici nudis, spinulis totis parvulis et remotis. Long. 4½‴.

Owing to the broad epimerals, the animal is narrow with high sides.

Additions to North American Ornithology, with description of new species of the genera Actidurus, Podiceps and Podylymbus.

By A. L. Herrmann, M.D.

Genus HYPOTRIORCHIS, Boie.

Hypotriorchis	aurantius,	Gmel.	Orange breasted Falcon.
Falco	"	"	Syst. Nat. vol. i. part. i. p. 283.
"	"		Latham's Birds, vol. i. p. 289.
"	femoralis,	Temm.	Pl. col. vol. i. pl. 121 and 343.

Male.—Head, wings and back, light slate color; the primaries being of a darker hue, and in their inner vanes barred with white, with which also the tertiaries are tipped. A white line starting from above the eye extends down the occiput, becoming rufous as it forms a collar on the hind neck. A deep slate colored moustache descends from the angle of the mouth, one half inch on the throat; auriculars of the same color. Chin, white. Breast, orange or yellowish white, and in some specimens marked with elongated spots of black. Abdomen, thighs and under coverts of the tail, rufous. Sides and flanks, dusky black; each feather being banded with delicate transverse white lines, and often uniting so as to form a band in front, at the junction of the breast and abdomen. In some specimens this band does not appear, as the dusky black feathers do not in all cases extend across the abdomen. Tail, light gray slate color, is composed of twelve feathers crossed by nine white bars; the ends of all these feathers being tipped with white, except the two centre ones. Legs, yellow. Bill, yellow, tipped with bluish black. Length, 14 inches.

Female resembles the male, but its colors are less brilliant and marked.

The young bird has the back and tail of a dusky brown, each feather being fringed with a narrow border of lighter shade. Primaries and tertiaries, edged with white. Breast, yellowish white, covered with a broad band of dusky black extending down to the thighs; these feathers being often edged with light clayish color. Moustache and auriculars, dusky brown.

I saw this bird twice on the vast plains of New Mexico, near the United States line, before procuring it, flying over the prairies in search of small birds and mice, and at times hovering, as is the wont of our common sparrow hawk, (*Tin. sparverius.*) We possess little information relative to its habits from those authors who have written on this bird. It appears to be a resident of Surinam, Cayenne, Brazil, Chili and other portions of South America, and is used in Chili for hunting the partridge. Besides this species, the American Ibis (*Ibis Mexicanus,*) also from South America, comes yearly to incubate in California; and further researches will doubtless still add to our fauna from that country and Mexico.

Genus PHALACROCORAX, Briss.

PHALACROCORAX PENICILLATUS, Brandt. Brandt's Cormorant.

The specimens in my collection, captured on the Ferrea Leones Islands, are, I take it, the same as that described by Brandt under the above title. Not having the work in which he describes the *P. penicillatus*, I have resorted, for the purpose of comparison, to a specimen so labelled, and purporting to come from North America, in the Museum of the Academy of Nat. Sciences of Philadelphia. They tally exactly in their color and markings, though they differ in size. The tail is greyish black, composed of twelve feathers. Feet, black. Bill, dusky, but of a lighter color towards base of lower mandible. Gular sac, blue, and at its base, a gorgelet of dirty white. Plumage of back of head, sides of neck and to the middle of the back, interspersed with white linear feathers, varying from two lines to two inches in length. Head, neck and abdomen, black, with glossy reflections of green and blue. Back, black, with glossy green reflections, each feather being margined with a narrow fringe of bluish black.

Dimensions of the Academy's specimen.—Length, 24 inches. From flexure to tip of wing, 10 inches. From point of bill to angle of mouth, 3½ inches. Length of outer toe, 3 3-8ths inches; of second toe, 3¼ inches; of inner toe, 1¼ in.

Dimensions of my specimen.—Length, 28 inches. From flexure to tip of wing, 11½ inches. From point of bill to angle of mouth, 4 in. Length of outer toe, 3¾ in.; second toe, 3½ in.; inner toe, 1¼ in.]

The bill in my specimen is stouter, the gular sac extends further down the throat, and the bare space around the eye is larger. Both specimens are in full spring plumage.

Late in June, these birds were quite numerous at the west end of the island, and did not appear to associate with the other species; but flocking together on the most elevated rocks, passed the after part of the day in a state of repose, the morning having been employed in pursuit of fish, upon which they prey. This bird was not incubating at that period, as was the P. Townsendii and P. splendens.

Genus ACTIDURUS, Bonap.

ACTIDURUS NÆVIUS, *nobis.* Mottled Grass Plover.

Form.—Bill, slender, as long as the head; culmen, straight; sides, compressed towards the tip, which is slightly curved; nostrils, linear. Wings, pointed, reaching to the end of the tail, the first primary being the longest. Tail, long, broad and rounded, the central feathers longest. Tarsæ and toes long. Claws, short and acute.

The feathers of the upper parts, black in their centre, with broad margins of light yellowish brown. Primaries, brown, the ends being black, narrowly tipped with white. Under surface, white, becoming mottled with black 2½ inches from their termini, which there change to a grayish hue. Under wing coverts, black, spotted with a very faint yellowish ochre and tipped with white. Under parts,

pale yellow ochre, the feathers bordered with faint white; those of the breast, near the pinion of the wing, having in their centre a linear spot of black. The lower part of abdomen and vent are of a much paler hue than the breast. Tail, brown on its upper surface, the two middle feathers having a bronzed tinge, the others being tipped with yellowish white, followed by a black band; under surface, grayish, the inner vanes being mottled with minute brown spots. Bill, black. Feet, light yellow. Length 7½ inches.

While riding on the prairie near San Antonio, my attention was called to this bird from its lesser size than Bartram's Tatler, (*Actidurus Bartramius*,) which there abounds. It ran nimbly on the ground among the grass in search of insects, uttering, when disturbed, a weak tweet, two or three times repeated. The birds of this genus, unlike the Tringae, (which congregate in large flocks, showing a preference for the sea shore,) migrate in small parties, resorting to the fresh water ponds and streams of the interior, or seek their food on the broad grassy plains, and run with great celerity. If alarmed, they fly with rapidity, making wide, circuitous sweeps before alighting. When wounded, they take to the water, swimming with facility and often diving to escape danger. The nest, formed of grasses and containing four eggs, is placed on the ground which has been previously hollowed out. When disturbed during the breeding season, the female, flying a short distance from her nest, throws herself on the ground, fluttering along as if wounded, and thus decoys the intruder into following her away. Once at a safe distance, she takes to wing, returning to her home by a circuitous route.

Genus PODICEPS, Lath.

PODICEPS CALIFORNICUS, *nobis*. California Grebe.

Form.—Size, small. Bill, slender, slightly curved upwards. Wings, short: first quill of primaries, slightly longest; secondaries, short; tertiaries, longer, nearly equal to the primaries. Tarsus, flattened; feet, large.

Color.—The entire upper parts of a deep, sooty brown, darkest and nearly black on top of the head and the back. Neck, almost encircled with grayish white, and in front with an indistinct band of grayish brown. Sides and flanks tinged with brownish gray. Under parts, silky white and near the vent having a sullied appearance. Under wing coverts, white. Some of the shorter primaries, of a cinereous brown, faintly tipped with white. Secondaries, white, of which a few have their outer webs brown. Bill, dark, tipped with lighter horn color. Feet, dark green. Length, 12 inches.

At first sight this bird appears very closely allied to the *P. cornutus* and *P. auritus*, but on comparing them, marked differences are at once perceived, both in size and form. I observed this grebe on the inland fresh water ponds, as well as on the sea shore, where it was abundant, passing its time on the water, in pursuit of insects and small fish, with which, on dissection, I found its stomach filled. Having procured it only during the winter, I am unable to describe its spring livery, and between the two seasons there is much difference of plumage in this genus.

Genus PODYLYMBUS, Lesson.

PODYLYMBUS LINEATUS, *nobis*. Lineated Diver.

Form.—Size, small. Bill, short and strong; nostrils, conspicuous. Wings, short; the 2d primary the longest; secondaries, short; tertiaries, longer than secondaries. Feet, large.

Color.—Entire upper parts, dark reddish brown. A white line from base of upper mandible, under the eye, and running down the neck, succeeded by another under it of reddish brown. Spots at the base of under mandible, reddish brown. Throat, white, marked with a few obscure spots of reddish brown. Lower neck, in front and upper part of breast, pale reddish brown, with which the sides and flanks are also tinged. Other under parts, silky white, the lower portion of abdomen and vent, mouse color. Quills, dark cinereous; secondaries, tipped with white. Bill, horn color. Feet black. Length, 11 inches.

This bird I procured during the summer, but it is found on the fresh water courses and marshy lakes of California throughout the year. The nest, composed of a few loose straws or rushes, is placed on the ground, near the edge of the marsh, and contains four eggs of a dirty white color.

Description of four new species of Kinosternum.

By JOHN LE CONTE.

The genus KINOSTERNUM, as defined by the latest writers on Herpetology, is described as follows: Head subquadrangular, pyramidal; cranium with only one rhomboidal plate; jaws a little hooked, papillæ under the chin. Sternum oval, moveable, both anteriorly and posteriorly on a fixed piece, furnished with eleven plates, wings short, narrow, subhorizontal, the axillary plate very large, the inguinal still larger. Vertebral scuta slightly imbricate. Tail long, in the males unguiculate.

A comparison is made of this genus with *Staurotypus*, to which it in reality has some affinity, but not so much as M. Dumeril supposes. It, indeed, does not fall into the same group when the Testudinata are properly arranged, but the Staurotypus, as will be shewn hereafter, is extremely different and has a manifest relation with the *Emysaurus*. M. Dumeril states that the elastic ligaments which retain the two moveable portions to the fixed intermediate part of the sternum, are situated, one under the suture of the pectoral and abdominal scuta, and the other under these last and the pectorals. Now it must be observed that the moveable portions of the sternum are not in every species joined by a ligament to the middle or abdominal piece; in many it is only the anterior one which is, and which of course turns as upon a hinge; the posterior portion is joined by a suture, which is only moveable in the same degree as any other portion of the bony frame of other animals which is articulated in a similar manner, its moveability depending in a great degree on the length of the teeth of the joining surface, in others the anterior portion is joined partly by ligament and partly by suture, the posterior one by suture only, and therefore not so moveable as in other instances.

In young subjects this capacity for motion in the so-called valves of the sternum is more apparent, but as they advance in age it gradually diminishes, until in some the three pieces become, as it were, soldered together. In those species where there are really two valves with ligamentous junctions, the box of the shell can be entirely closed, and this connects them in some degree with *Cistudo*, but this has the sternum joined to the shell by a membrane, whereas in Kinosternum the same thing is effected by bony commissures from prolongations of the abdominal portion.

The peculiarities of the sternum will allow the species of this genus to be arranged in three groups. 1st. Those in which it is truly bivalved, and closing entirely the aperture of the cell. 2d. Those in which although the sternum is wide, it by no means closes up the carapace, and is only furnished with an anterior valve joined to the abdominal portion, partly by ligament and partly by suture, yet fully moveable as if the ligament was extended along the whole of the hinder margin, the posterior valve united by a suture which admits of more or less motion. 3d. The sternum with two joints, both of them completely sutural. In these the different parts are frequently as immoveable as in an Emys.

The following description of the genus Kinosternum is offered with the hope that it contains all the distinguishing characteristics possessed by the animals, and that it will be sufficient to separate them from all others of the Testudinata.

KINOSTERNUM.—Chin with from two to six papillæ or warts. Vertebral scuta more or less imbricate; marginals twenty-three, sternal eleven in number. Sternum composed of three separate pieces, of which the abdominal or intermediate one is immoveable, the anterior one turning on a partially or entirely ligamentous hinge, and the posterior articulated to the same piece either by a ligament or by a suture, and consequently either freely and entirely moveable, or only more or less imperfectly so. The wings which connect the sternum to the

shell are sometimes long and narrow, sometimes short and broad, but always proceeding only from the abdominal piece. The shorter the wings the more nearly can the shell be closed up by the sternum. The inguinal plate is long and generally tolerably wide; the axillary much smaller and narrowed anteriorly. The feet are palmate, the fore feet with plicæ or folds or transverse scales on the outer side, the hind feet with as many on the inner side and a few smaller scales near the heel. The tail is sometimes furnished with papillæ and sometimes naked, often with a nail at the end and as often unarmed: this nail in no instance being distinctive of sex.

The species embraced in the last group would by some be considered as belonging to the genus Staurotypus, and by others to Sternothærus, to neither of which does it bear but a very slight resemblance.

The sternum of *Staurotypus* is, as it were, cruciform and pointed before and behind, the anterior portion consisting of but two plates, formed of the gular, the brachial, and the pectoral united, and joined to the abdominal by a ligamentous hinge, the two anal ones likewise being united into one so that the sternal scuta are only seven in number. The whole contour of the animal reminds one of the *Emysaurus*. As for the Sternothærus it is exclusively an African genus, and is remarkable for having no nuchal plate, and thirteen sternals, there being three gulars, those with the brachial and pectoral forming an anterior valve, which is joined to the abdominal piece by a ligament, and of course is moveable, the rest of the sternum is as fixed and immoveable as that of an Emys. The figure of an animal of this genus in Dumeril's Herpetologie represents the wings as projecting from the pectoral and abdominal scuta, in which case the anterior portion of the sternum would not be moveable.

I shall now proceed to describe all the species of Kinosternum which I have been able to examine, giving minute details of those which I consider new, and shorter or diagnostic descriptions of such as have been described before.

Group 1st. Consisting of those with bivalved sterna, the valves joined to the abdominal piece by ligamentous hinges.

Kinosternum longicaudatum. Testa indistincte 3-carinata, elliptica, convexa, dorso depressiusculo, postice retusa, margine angusto, nullo modo dispanso, sterno cistam omnino occludente, postice profunde sed anguste emarginato, scuto vertebrali primo ad nuchale, marginale primum, et secundi partem anteriorem appositum, vertebrali postremo solum ad marginale postremum. Cauda unguiculata. ungue lato et obtuso.

Habitat in America meridionali. Spix, Rept. Bras. p. 17, tab. xii.

The carinæ on the back of the shell are rather indistinct, and without doubt, in older individuals, are not perceptible at all. This species is considered by Dumeril as the *Testudo scorpioides* of Linnæus, which determination we shall presently see is erroneous.

K. scorpioides. Testa ovali modice convexa, dorso fortiter, lateribus modice carinata, margine declivi, scutis posterioribus vix latioribus. Sterno utrinque rotundato, integerrimo. Cauda acute unguiculata.

Hab. in America meridionali Surinami: unde a Dom Dr. Hering receptum.

Head and neck grey, mottled and reticulate with black, upper jaw slightly hooked. Shell oval, moderately convex, strongly carinate, on the vertebral line, slightly so on each side, margin obliquely declivous except in the middle, where it is perpendicular. First vertebral plate triangular, with the apex truncate and the base angled; second, third and fourth hexagonal, with all the sides nearly straight; fifth triangular, with the outer posterior angle obliquely truncate, and applied to the penultimate marginal, which is scarcely wider than that which precedes it, in consequence of which the posterior lateral is nearly trapezoidal. Margin acute all round, the plates oblong. Sternum elliptical, rounded at each end, entire, not closing up the shell entirely; wings short, inguinal plate large, scarcely narrowed anteriorly. Tail furnished with a sharp nail.

Length 5.7, height 1.6, width 4 inches, sternum 4.8 long.

The above description appears to me to answer better to the Testudo scorpioides than any other which I have seen. On account of the many varying opinions concerning it, I have given a more detailed description than would

otherwise have been necessary. The species is thus described in Gmelin's edition of the Systema Naturæ, vol. 1, p. 1041. *T. scorpioides.* Palmis unguibus, 5 plantis 4, fronte callosa triloba, cauda unguiculata. Hab. Surinami.

Testa nigra, ovali, oblonga, dorso quasi angulis 3 obsoletis, scutellis dorsi figura clypeorum nobilium (*heraldic shields*). Caput anterius tectum callo, qui posterius trilobus est, plantarum digitis externis muticis, ungues acuti, cauda incurva.

The indistinctness of the dorsal carinæ makes me conclude that by the expression "quasi angulis tribus obsoletis" is meant their rather imperfect development. I may not be right in this, for the description is scarcely sufficient to decide the question. Were it not for the great respect every naturalist ought to feel for the great master,

"Qui cunctos superat quod aut fuerunt
Aut sunt, aut aliis erunt in annis,"

it would be as well to strike out of our books this name, as well as many others scattered through his works.

M. Dumeril considers the longicaudatum of Spix, as well as his brevicaudatum, synonymous with this species. The two above-mentioned species are very different from each other, and have but a slight resemblance to the *scorpioides*. An attentive perusal of the tedious and *oratorical* descriptions of the Brazilian traveller shows this.

K. Mexicanum. Testa ovali valde convexa fusco-lutescente vel nigricante; dorso fortiter tricarinato, margine undique declivi, scutis vertebralibus secundo, tertio, et quarto elongatis. Sterno utrinque rotundato, integerrimo. Cauda unguiculata.

Hab.—Mexico; whence it was brought by Mr. Pease. Considered by Shaw in his general zoology as a variety of *K. Pennsylvanicum*, vol. iii., p. 61, pl. 15.

Head and neck above black, beneath yellow reticulately spotted with black, jaws yellow, the upper one hooked and entire. Chin with four small warts, only visible in young individuals. Fore legs above dusky, spotted on the anterior side with yellow, beneath brown inclining to dusky, with four plicæ or large transverse scales on the upper side. Hind legs of the same color, with four large and broad scales and numerous small ones near the heel. Tail short, dusky, naked, with a rather sharp and long nail. Shell brownish dusky varied with yellowish or altogether yellowish, the plate with a few indistinct, concentric striæ, which in young ones are more numerous and more distinct, and accompanied by others radiating from behind, regularly oval, very convex and elevated, strongly tricarinate, so as to form two deep and wide channels on the back: very declivous on the sides and on the margin all round. Vertebral plates elongated and imbricate, the first triangular, with the apex truncate, and the base somewhat angled, applied to the nuchal and first marginal only; the second, third, and fourth urceolate-hexagonal; the second and third emarginate behind; the fourth with the anterior lateral faces twice as long as the posterior lateral, and the posterior side bearing the same relation to the anterior; the fifth heptagonal, the two anterior faces very long, the posterior lateral short and perpendicular to the two basal, which are straight; in young specimens this plate is simply triangular, with the apex truncate. The first lateral plate is unequally triangular, the lower side curved, second and third very long, pentagonal, the fourth quadrangular with the posterior base widely emarginate, so as to give the figure another side, which thus becomes pentagonal. Nuchal plate small, wider at base; all the other plates oblong and four-sided, except the penultimate, which is twice the height of the others, with its upper face rounded, so as to emarginate the posterior basal angle of the last lateral, and is applied on the upper half of its posterior side to the last vertebral, giving that plate its pentagonal form. Sternum large, yellow, the sutures black: oval, entire, rounded at both ends, the plates in young ones concentrically and radiatingly striate, entirely closing up the box: gular plate large, triangular; pectorals irregularly foursided, the anterior face longer than the lateral; brachials triangular; abdominals nearly square; femorals triangular with the apex truncate, and the base rounded;

caudals right angled triangular; wings very short; inguinal plate long and narrow, not joining the axillary.

Length 4.4, breadth 3.0, height 2.3, sternum length 4.2, tail 1.4.

Shaw's figure and description referred to above are both very bad.

K. integrum. Testa fusca, regulari-ovali, convexa, carinata, declivi, margine postice dispanso, laterali perpendiculari, sterno magno bivalvi, cistam omnino occludente, antice rotundato, postice paulo emarginato. Cauda brevissima mutica.

Habitat. Mexico.

Head and neck brown spotted with yellow; front pale brown, a large orange spot behind the eye, somewhat varied with black. Jaws yellow, upper one very slightly hooked. Chin with four small warts. Legs above dusky, beneath pale brown; fore legs with two folds on the upper side; hind legs beneath squamose with four folds. Tail very short, unarmed. Shell brown, regularly oval, very convex and elevated, without any carina, very declivous on the sides and behind, the lateral margin perpendicular, the posterior expanded. Vertebral plates imbricate; the first triangular with the apex truncate, applied to the nuchal the first marginal and half the second; second, third, and fourth urceolate; the second and third hexagonal; the fourth four-sided, the anterior side one-third the length of the base, which is rounded; the fifth triangular, the apex broadly truncate, the base angled, and applied only to the last marginal. First lateral unequally four-sided, the base rounded, with four facets, second and third pentagonal, fourth four-sided, the posterior basal angle deeply and roundly emarginate by the penultimate marginal. Nuchal plate small, linear, all the other marginals oblong and four-sided, those on the sides perpendicular, the four last on each side wider and expanded, the penultimate one being higher than all the rest, and rounded on the upper side. Sternum yellow, varied with dark brown, with numerous diverging striæ on the hinder plates, and concentric ones on the anterior, rounded at both ends and a little emarginate behind; bivalved, entirely closing the box. Gular plate small, triangular, nearly equilateral; pectorals irregularly four-sided, the anterior face very short; brachials four-sided, the interior side half the length of the exterior; abdominals exactly quadrate, wings short, axillary scutum long and narrow, joining by a point to the inguinal, which is likewise very long but much wider; femorals four-sided, the interior side one-third the length of the exterior; caudals right angled triangular, with the base rounded.

Length 4.6, breadth 3.0, height 1.7, tail 1.3, sternum length 3.0, breadth 2.0.

Brought by Mr. Pease from Mexico.

K. leucostomum. "Testa elliptica, convexa, postice subcarinata. Scutis vertebralibus elongatis, primo ad nuchale, primum marginale et secundi partem apposito, quinto ad marginale postremum solo apposito; margine medio subcompresso, postice dispanso. Sterno integro medio paulo angustato, cistam pæne occludente. Cauda late et obtuse unguiculata, maxillis albidis superiore valde hamata.

Habitat. ———. A fine specimen in the collection of the Academy, received from the Jardin des Plantes of Paris. It is described under the name of *leucostomum* by Dumeril, Cat. Reptil. Mus. I. des.

Group II. Anterior valve of the sternum joined to the abdominal portion partly by a ligament and partly by a suture, the posterior by suture alone; wings tolerably long, with a deep and wide groove on the anterior part.

K. pennsylvanicum. Testa elliptica, convexa, dorso depressiuscula, postice retusa; margine angusto, minime dispanso. Scutis vertebralibus subimbricatis, primoad nuchale et primum marginale apposito, quinto ad marginale postremum solum apposito; scuto marginali penultimo multo cæteris latiore et altiore. Sterno testa angustiore, postice emarginato. Cauda acute unguiculata.

Hab. From Canada to Florida. Has a musky odor.

A young one of this species, about an inch long, had the shell perfectly round, dark brown, with a yellow spot on each of the marginal scuta, scuta of the shell a little roughened with transverse wrinkles and short elevated spots. Sternum yellowish, black in the middle. Another one much younger and smaller was of an oval form, with three very obscure and slightly developed carinæ.

K. sonoriense. Testa modice convexa, postice latiore, antice et postice declivi, margine antice et postice dispanso, medio declivi; dorso indistincte tricarinato, carina intermedia vertebrali evidentiore, alarum canali leviter exarata, prope rudimentali. Cauda unguiculata.

Hab. In the northern part of the province of Sonora.

Skin black, head and neck large, above mottled and spotted with whitish, beneath whitish, varied in the same manner with dusky; jaws horn-color, varied with black, the upper jaw hooked and emarginate; irids dark brown; chin with two tolerably large warts on the fore part. Fore legs above greyish dusky, with three plicæ or large scales; feet beneath scaly; hind legs with three large scales near the heel; hind part with two large patches of rounded echinate scales. Tail sulcate beneath, with a large and strong, rather blunt nail, and six rows of small upright pointed papillæ, and a few smaller ones round the anus. Shell cinereous brown, with some very faint radiating marks of darker, and some indistinct concentric striæ on the plates: it is elongated oval, a little widened behind, moderately convex, declivous both before and behind, the anterior and posterior margin expanded, the middle declivous; very slightly tricarinate on the back, the intermediate carina more apparent, particularly before and behind, the lateral ones obsolete and scarcely to be traced except on the two last lateral plates. Vertebral plates imbricate, the first triangular, with its apex truncate, its base straight and applied only to the first marginal, second, third and fourth urceolate hexagonal, the second longer than either of the two others, the fifth heptagonal, the upper face short subtridentate, the anterior lateral one much longer than the others, the posterior lateral short and perpendicular to the basal, which are a little curved. First lateral unequally quadrilateral, the lower side curved and with four facets, second and third transverse, pentagonal, fourth quadrangular, the posterior lateral angle widely and deeply emarginate so as to give to the figure another curved side, by which it becomes pentagonal: margin narrow, expanded in front, declivous in the middle, the three last plates expanded and the caudal one again declivous, nuchal plate oblong four-sided, the second a little wider than the first, third and fourth, the fifth, sixth, seventh, eighth and ninth are wider and somewhat angled on the upper face; all these are oblong, the tenth or penultimate is wider than any, its upper face is rounded and deeply and widely emarginates the posterior basal angle of the fourth lateral, and is applied on the upper part of its posterior face to the last vertebral, giving to that plate its pentagonal form. Sternum jointed before by a ligament and behind by a suture, not entirely closing the box of the shell; before bluntly rounded, behind emarginate, the plates concentrically striate, gular plate large, equilaterally triangular, the base rounded, pectorals oblong quadrangular, outer side a little wider than the inner and curved, the two exterior angles right, the lower one projecting a little beyond the brachials, the anterior interior angle very obtuse, the remaining one very acute; brachials triangular, the apex blunt; abdominals quadrangular, the outer side a little curved; femorals quadrangular, the inner side much shorter than the outer, posterior side oblique, outer side curved, the anterior straight, the posterior exterior angle projecting a little beyond the caudals which are right-angled triangular with the base rounded.

Length 4.4, breadth 2.7, height 1.3: sternum length, 3.7. tail 1.4.

This species, which has the shell much less elevated than any other which I have seen, appears to be intermediate between this group and the next, so much so, that I long hesitated where to place it. The points of resemblance, however, which it had in common with the *pennsylvanicum* being more numerous than those which belong to the *odoratum*, led me at last to arrange it with the former. I may have been wrong in doing this, but if so, there is not much harm done. The *K. sonoriense* was brought by my son along with many other interesting animals from Tucson in Sonora; there can be but little doubt of its being found likewise in California.

Group III. Sternum narrow, subcruciform, valves joined to the abdominal portion of the chest by sutures, the lateral teeth of which are so large as to admit of but little motion, especially in the posterior one; wings long and narrow without any groove on the inner part, tail unarmed.

K. odoratum. Testa elliptica valde convexa, dorso plus minus carinato (interdum medio depresso plano) postice valde declivi, margine angusto minime dispanso, scutis vertebralibus imbricatis, primo ad nuchale et marginalis primi dimidium apposito, scuto postremo quinquangulari ad marginale postremum solum apposito, scutis marginalibus duobus postremis cæteris valde latioribus. Sterno testa multo angustiore, lobo anteriore posteriore mobiliore, interdum tamen ambobus fixis.

Hab. From New York to Florida. Smells of musk.

Test. pennsylvanica sterno immobili Schoepf. p. 110. T. odorata Daudin Hist. rept. vol. ii. p. 189. Test. glutinata ejusd. l. c. p. 194. Emys odorata Schweig. vol. i. sp. 37, p. 437. Terrapene odorata Merr. Amph. p. 26. Test. Boscii ejusdem l. c. p. 23. Emys glutinata ejusd. l. c. p. 24. Cistudo odorata Say, Journ. Acad. Sci. vol. iv. p. 206. Sternothærus odoratus Bell, Zool. Journ. vol. ii. p. 299. Sternothærus Boscii ejusd. l. c. spec. 4. Kinosternum odoratum Bonaparte, Obser. p. 188. Staurotypus odoratus Dumeril, Erpet. vol. ii. p. 299.

It is remarkable how this species has been shifted from one genus to another, until it may be found arranged under six different genera, and divided into four species. It does vary considerably as regards the mobility of the sternum, and the form of the dorsal portion of the shell, which although generally carinate is sometimes perfectly flat in the middle; specimens in all respects intermediate may be found. The anterior valve of the sternum cannot be moved more than so as to form an angle of 20° with the abdominal line, the posterior much less.

K. guttatum. Testa ovali, dorso subcarinato; flavida fusco maculata, margine undique, postice valde declivi, minime dispanso. Sterno flavescente, angusto, antice truncato, postice late emarginato, femoribus et cruribus seriebus papillarum latere interiore echinatis. Cauda mutica.

Hab. in Pennsylvania; Prof. Baird.

Head and neck dusky brown, varied with yellow on the front and cheeks, jaws yellow with a few shades of dark brown; the upper one not hooked, the margin scarcely sinuate, chin with four small warts. Legs dusky, furnished with the usual plicæ and scales, the femora and tibiæ with a small area on the inner side of each, echinate with rows of small pointed papillæ. Tail with six rows of pointed papillæ, unarmed at the end. Shell yellowish, exactly elliptical, convex, declivous on all sides, nearly perpendicular behind, subcarinate on the vertebral line; spotted with dark brown particularly on the upper part. Vertebral scuta imbricate, the first triangular with the apex truncate and the base nearly straight, applied to the nuchal and more than half of the first marginal, second, third and fourth areolate, hexagonal, the upper face emarginate, the lower rounded, the fifth pentagonal, the upper face narrow and emarginate, the two basal faces incurved and applied only to the last marginal. First lateral, large, unequally four sided, the lower side curved, and three times as long as the upper, second and third pentagonal, fourth quadrangular, the posterior lateral angle widely emarginate by the curved upper side of the penultimate marginal, so as to give the figure another side; nuchal plate small linear, the other marginals oblong four sided, nearly equal, except the two last which are much higher, and nearly equal, their upper faces curved. Sternum yellow, narrow, wings very much produced, before truncate and entire, behind widely emarginate, valved as in the last. Gular plate small, irregularly triangular, pectorals four angled, all the sides more or less curved, the posterior lateral angle projecting a little beyond the next scutum, brachials four sided, the upper side concave, the outer convex. Abdominals four sided, wings long and narrow, axillary and inguinal plates semioval, the first produced anteriorly, the other posteriorly to a point; femorals triangular, the apex widely truncate, the posterior exterior angle projecting beyond the next scutum which is four sided; the upper side oblique inwardly, the lower concave.

Length 3.8, breadth 2.7, height 1.45. Sternum length 2.6, breadth at the valve 1.4, tail 1.5.

Besides these, there are four species described by others which I have never seen, namely, K. *hirtipes* Wagler. descript. et icones. tab 630. K. *brevicaudatum* Spix. Rept. Braz. p. 18, tab. xiii. K. *cruentatum* Cat. Mus. Jardin des plantes, and K. *Doubledayii* Gray, Cat. Brit. Mus.

In the imperfect monograph of the Tortoises of the United States, published in the Annals of the Lyceum of Natural History of New York for the year 1829, I complained that no arrangement of these animals had yet been offered to the world which I could consent to adopt. This defect has not yet been remedied, nor since then have the various suggestions offered by different naturalists been at all satisfactory. Every scheme for the arrangement into families and groups, has evidently not been founded on natural and philosophical principles. Most writers on Herpetology appear to have devoted their time, not to the discovery of the affinities of the objects they were describing, but to changing the names of the genera and the species, and to making species out of the slightest varieties; thus clogging the science with useless and absurd synonyms.

The simplicity of my arrangement, which divides the whole order into four great families, and these again, when necessary, into groups, will I hope recommend it to notice. I owe this arrangement, in a great degree, to the suggestions of my son.

FAMILIA PRIMA.

Pedes penniformes. *Sternum* osse episternali postice producto.

1. CHELONE Brog. Corpore scutato. Sternum scutellis pluribus a testa seiunctum. *Caretta* Merr. et Bon. *Coriudo* Flem. *Thalassochelys* Fitz.

2. SPHARGIS Merr. Cute coriacea. *Coriudo* Flem. *Dermatochelys*, Blainv. *Scytina* Wagl.

FAMILIA SECUNDA.

Pedes compressi, ungulati. *Sternum* scuto singulo (abdominali) alato, alarum marginibus non inflexis.

A.

Sternum osse episternali postice producto.

1. CHELYDRA Schw. Corpore scutato. Sterno scutis 10; abdominalibus luxatis alas formantibus. *Chelonura* Flem. *Rapara* Gray. *Saurochelys* Lat. *Emysaurus* Dum.

2. STAUROTYPUS Wagl. Corpore scutato. Sterno antice mobili, scutis septem, brachialibus et gularibus nullis, anali unico.

3. TRIONYX Geof. Cute coriacea. Ossibus marginalibus nullis. *Gymnopus* Dum. *Amyda* Schw. *Platypeltis* Fitz. *Pelodiscus* eiusdem.

4. EMYDA Gray. Cute coricea; ossibus marginalibus distinctis. *Trionyx* Wagl. *Cryptopus* Dum.

B.

Sternum plus minus uni-vel-bivalve, osse episternali maximo, entosternali obsoleto (in pullis rudimentali) alis a scuto abdominali solum proiectis.

1. KINOSTERNUM Wagl. Alis scutellis duobus additititiis, sterno scutis 11. *Staurotypus* in parte Dum. *Sternothœrus* in parte Bell. *Cistudo* Say.

FAMILIA TERTIA.

Pedes ungulati plerumque compressi. *Sternum* scutis duobus alatis (pectorali abdominalique;) alarum marginibus, excepta Cistudine, fortiter inflexis; scutis caudalibus duobus distinctis.

§ *a*. *Sternum* scutis 11 s. 12 tectum; unguibus 5-5, 4-5, 4-4, vel 4-3.

1. EMYS. Sterno solido sutura laterali ossea, scutis gularibus duobus. Alis scutellis duobus additititiis. Unguibus 4-5 vel 4-4. Includitur genus Lessonianum *Tetronyx*. *Rhinoclemys* Fitz. *Terrapene* Bon. *Clemmys* Wagl. *Geomys* Gray.

2. PLATYSTERNUM Gray. Sterno solido, sutura laterali ossea, scutellis tribus additititiis a scutis marginalibus seiunctum.

3. Teleopus* Lec. Terrestris. Sterno solido, sutura laterali ossea, alis scutellis additititiis duobus; scutellis brachialibus luxatis et quasi inter marginem pectoralis inferiorem et abdominalis superiorem propulsis, unguibus 5-5. Transitum facit ad familiam quartam.

4. Lutremys Gray. Terrestris. Sterno diviso antice mobili, sutura laterali ligamentosa, alarum marginibus inflexis. *Cistudo* Auct.

5. †Cistudo Fleming. Sterno diviso antice et postice mobili sutura laterali ligamentosa, alis nullis unguibus 4-5 vel 4-3. *Terrapene* Merr., &c., *Pyxidemys* Fitz., *Onychotria* Gray, *Emys* Schw.

§ *β*. Sternum scutis 13 tectum.

6. Chelys Dum. Labiis carneis. *Matamata* Merr.

7. Chelodina. Labiis sicut, in omnibus sequentibus, corneis. Alis scutellis additititiis nullis, scuto gulari intermedio luxato et inter scuta brachialia et pectoralia, infraque gularia duo reliqua posito; unguibus 4-4. *Chelidonia* Bon. *Hydromedusa* Wagl., *Emys* Schw., *Hydraspis* Bell et Gray.

8. Sternothærus Bell. Sterno diviso antice mobili. Alis scutellis additititiis nullis, scuto nuchali nullo, marginalibus 24. *Emys* Schw., *Terrapene* Merr., *Pelusios* Wagl.

9. Pentonyx Dum. Sterno solido, alis scutello additititio posteriore: scuto nuchali nullo, marginalibus 24; unguibus 5-5. *Emys* Schw., *Pelomedusa* Wagl., *Hydraspis* Gray.

10. Platemys. Alis scutello additititio parvo anteriore. Testa scuto nuchali, marginalibus ideo 25. *Rhinemys* Wagl., *Phrynops* eiusdem, *Emys* Schw., *Hydraspis* Gray.

11. Podocnemis Wagl. Alis sine scutello additititio. Testa scuto nuchali magno lato. *Peltocephalus* Dum., *Emys* Spix, *Hydraspis* Gray.

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* *Teleopus luxatus*. Shell very dark brown, almost black, somewhat flattened along the vertebral line, declivous behind, a little expanded in front, nearly perpendicular on the sides. First vertebral plate six-sided, of the form of a heraldic shield, with the point truncate, the posterior side recurved, 2d, 3d and 4th six-sided, the lateral faces half the length of the anterior or posterior sides; 5th four-sided, the anterior face recurved, the posterior incurved, very wide with four facets. First lateral three-sided, the anterior side with four facets: the rest four-sided, superior and inferior sides angled, the inferior side of the third with three facets, the superior side of the fourth oblique backwards, the inferior curved. Marginals, nuchal oblong rectangular, the rest nearly square, the 2d, 6th, 7th, 9th and 11th superiorly angled. Caudals two. Sternum emarginate at both ends, posteriorly more deeply and widely; gulars triangular, blunt and somewhat rounded at the point; pectorals irregularly four-sided, the posterior lateral angle cut off and emarginate by the displaced brachial; this last is of an oblong shape, the superior face emarginate, the inferior straight, and the two lateral rounded; abdominals very wide, irregularly eight-sided, the posterior exterior side short and emarginate; supplementary scutellæ small; femorals four-sided, the exterior lateral face oblique inwardly; anals right angled triangular, the hypothenuse curved. Upper jaw with three rows of serrate teeth, the lower with two, the outer ones the finest. Toes and claws 5-5, fore claws long and rather sharp; hind feet clavate, claws nearly globular, the innermost one wide and flat, the edge rather sharp. Length 17 in., width 11.5, height 6.5.

Inhabits Java; must, from its shape, be terrestrial in its habits.

It possesses a strange mixture of the characters of this family with those of the next.

† Etiamsi in hujus generis animalibus adultis alia sterni iunctura cum testa non apparet præter ligamentosa sine alis, tamen pullorum sternum evidentur alis est instructum, quæ testa scutellis quatuor seiunguntur. Nares subtubulosæ sunt, aliis rebus ad Emydes respiciunt. Cistudo clausa omnino et præcipue terrestris. Dubito revera num natare potest. Pulli in aqua iacti semper merguntur. Hæc natura terrestris cum cute squammosa apte ad Testudines iungit.

FAMILIA QUARTA.

Terrestres. Corpus scutatum. Sternum alatum, sutura laterali ossea, alarum marginibus fortiter inflexis. Pedes clavati, ungulati; scutum caudale nunquam divisum, sed stria superiore perpendiculari fortiter impressa, qua in partes duas secari videtur.

1. TESTUDO. Alis scutellis additititis nullis, scuto gulari in partes quatuor diviso, dorso osse penultimo vertebrali V-formi. *Chersine* Merr., *Chersus* Wagl., *Psammobates* Fitz., *Geochelone*, *Chelonoides* et *Cylindraspis* eiusdem.

2. PYXIS Bell. Sterno articulato, antice mobili. Alis scutellis additititis duobus.

3. HOMOPUS Dum. Sterno solido, alis scutello additito anteriore; unguibus 4-4. *Chersine* Merr., *Testudo* Bell et aliorum.

4. KINYXIS Bell. Sterno solido, alis scutellis additititis duobus. Testa postice articulata et mobili, scuto nuchali nullo.

I add a list of American species of Testudinata, as far as they have yet been described; many undoubtedly yet remain to be added to it, as few have been received from Texas, California and Oregon. I have omitted the sea tortoises because we know nothing about such as are found on our coasts. All the synonyms which I have been able to collect are here set down. This will serve to show the state in which the science of this branch of Herpetology is at present, as far as relates to our country.

I have in the following Catalogue considered the Testudo polyphemus as the T. Carolina of Linnæus and Gmelin, and the T. Carolina of authors as the T. clausa of the latter. My reasons are these: The original description in the 12th edition of the Syst. Naturæ, vol. i. p. 352, is as follows:

TESTUDO CAROLINA. Pedibus subdigitatis, testa gibba, cauda nulla. Test. pedibus digitatis, calloso-squammosis; testa ovali, subconvexa, scutellis planis, striatis, medio punctatis. Gron. Zooph. 17, No. 77. T. tessellata *minor* caroliniana. Edw. Av. tab. 205, (undoubtedly the Clausa;) Seba. Mus. 1 tab. 80 figs. Test. *major* terrestris americana, (which is represented as 9 inches long.)

To this Gmelin adds: Caput subobtusum, squammis obtusis undique tectum. Pedes squammis orbiculatis obtecti, antice unguibus 5 postice 4 *subulatis, acuminatis* validis armati. Cauda brevissima. Scutum ovale, subconvexum antice lunulato-excisum margines acuti nec serrati. Scutella lata ad margines striis cincta, centro punctis excavata. Sternum acuminato-truncatum postice bifidum. Erasing the words in italics, this is a tolerable description of the large American land tortoise, and Gmelin certainly had it in view when he made his addition to the original description. His expression, "Sternum antice truncatum postice bifidum," together with the scaly head, prove this. The scuta of young animals of this species are deeply marked with concentric striæ, and have a nearly square area in the centre of each, which is deeply and coarsely punctate. The name of *Polyphemus* which has been given to it, means nothing; that of *Carolina* is much more fitting; and as for the other species which has been called *Carolina*, nothing can be more appropriate than *Clausa*.

It will be observed likewise that I have called the Cistudo Blandingii of Holbrook, *Lutremys meleagris*. About the generic name there can be no dispute; but as for the specific name, my reasons for referring it to a species already described are these. The Testudo meleagris of Shaw, Naturalist's Miscellany, vol. iv. p. 144, has been considered as identical with the Lutremys Europœa, and is always quoted as a synonym of it. Shaw tells us that his animal came from America; the other is, I believe, exclusively European. Both species are remarkable for having the shell more or less covered with small yellow spots; in the first these are irregularly scattered over the surface, in the latter they regularly radiate from a centre on each scutum; the shell is also less convex.

CATALOGUE OF AMERICAN TESTUDINATA.

CHELONURA SERPENTINA. *Emysaurus aliorum.*

CH. TEMMINCKII Holbrook, vol. i. p. 134.

TRIONYX FEROX Auct. *T. Bartrami*, Geof. Ann. Mus. vol. xiv. p. 18. *T. georgicus* ejusd. l. c. p. 7. *T. spiniferus* (spinifer,) Lesueur, Mem. Mus. vol. xv. p. 253. *Aspenodectes ferox* Wagl. p. 134. *Gymnopus spiniferus* (spinifer,) Dumeril, Erpetol. xi. p. 477.

T. MUTICUS Lesueur. l. c. p. 263.

KINOSTERNUM PENNSYLVANICUM. *Terrapene penns.* Merrem, Syst. p. 27. *Emyx id.* Schw. vol. i. p. 437. *Cistuda id.* J. A. N. S. vol. iv. p. 204.

K. SONORIENSE Lec.

K. ODORATUM. *Terrapene odorata et Boscii* Merrem, l. c. p. 27. *Cistudo odorata* Say, l. c. *Emys odorata* Schw. l. c. p. 437. *Test. glutinata* Daudin, vol. xi. p. 194. *Sternotherus odoratus* Bell, Zool. Journ. vol. xi. p. 307. *Staurotypus odoratus* Dumeril, l. c. p. 358.

K. GUTTATUM Lec.

CISTUDO CLAUSA. *Cistudo carolina* alior. *Test. virgulata* Lat. Hist. Rep. vol. i. p. 100. *Emys clausa* Schw. vol. i. p. 315. *Emys virgulata* ejusd. ib. p. 316. *E. Schneideri* ejusd. ib. p. 317. *Terrapene carolina maculata et nebulosa* Bell, Zool. Journ. vol. xi. p. 309. Var.? *Onychotria mexicana* Gray, Proc. Zool. Soc. vol. 17, p. 16.

LUTREMYS MELEAGRIS Turton's Lin. Syst. Nat. vol. i. p. 645; Nodder and Shaw, Nat. Miscel. vol. iv. p. 144. *Cistudo Blandingii* Holbr. vol. i. p. 39.

EMYS MUHLENBERGII Schœpff. p. 132. *Chersina Muhlenbergii* Merrem. *E. biguttata* Say, l. c. p. 212.

E. SERRATA Daudin, l. c. p. 145. *E. scripta* Gray, Rep. p. 29, who quotes Schœpff, where is figured a young animal which it is impossible to refer to any species.

E. RUGOSA Shaw, Zool. vol. iii. p. 28. *E. rubriventris* Lec. Ann. Lyc. vol. iii. p. 101. *E. irrigata* Dum. l. c. p. 276. *E. serrata* Say, l. c. p. 204. Varies very much, but the essential character is in the dentation of the jaws.

E. RETICULATA Latr. vol. i. p. 124.

E. FLORIDANA Lec. Ann. Lyc. l. c. p. 100.

E. MOBILIENSIS Holbrook, l. c. p. 71.

E. CONCINNA Lec. l. c. p. 106.

E. OREGONENSIS Holbr. l. c. p. 107.

E. HIEROGLYPHICA Holbr. l. c. p. 111. *E. ornata* Gray, Rept. p. 50. *E. annulifera* ejusd. ib. p. 52.

E. CUMBERLANDENSIS Holbr. l. c. p. 115.

E. TROOSTII Holbr. l. c. p. 123.

E. INSCULPTA Lec. Ann. Lyc. vol. iii. p. . *E. scabra* Say, l. c. p. 210. *E. speciosa* Gray, l. c. p. 26.

E. GEOGRAPHICA Lesueur. *E. pseudogeographica* ejusd. Holb. vol i. p. .

E. PALUSTRIS Linn. *E. terrapene* alior. *E. contrata et concentrica* quorund.

E. PICTA. *T. cinerea* Schœpf. tab. iii. f. 2 and 3, is a young one.

E. GUTTATA. *E. punctata* Schœpf.

TESTUDO CAROLINA. *T. polyphemus* aliorum.

In the Catalogue of Amphibia in the collection of the British Museum, and in that of the Jardin des Plantes, the following species of tortoises are mentioned as coming from the United States. In the English Catalogue are described Emys rivulata, E. scripta, E. Holbrookii, E. macrocephala, and E. Bennetii. Not having these, and knowing that the descriptions must have been taken from dried and faded specimens, or from such as were bleached by long immersion in

alcohol, I do not hesitate to pronounce them as having no real existence as distinct species, or at most as being slight variations from others well known and long ago determined.

The Kinosternum Doubledayii, however, forms an exception. It appears to be certainly a new and hitherto undescribed animal, although what Mr. Gray says of it is scarcely sufficient to distinguish it. M. Dumeril's E. labyrinthica seems to be nothing more than E. hieroglyphica of Holbrook, slightly varying in the disposition of the marks and lines on the shell; his Kinosternum cruentatum is probably not from this country; it is a well marked and distinct species.

The following species, retained in most of our books, ought to be struck out. In Schœpff, Testudo tricarinata, a young animal of some Kinosternum; T. cinerea, a young picta; T. scripta, a young serrata or reticulata; T. rostrata, a young Trionyx. And from Linnæus, Syst. Nat., T. membranacea, which is likewise a young Trionyx; T. scabra,—the description has been made from an immature specimen, which, if full grown, might have been smooth; T. carinata; T. sulcata; and, finally, T. squamosa, which is not a Chelonian.

Observations on the Vespertilio leporinus of Linnæus.

By JOHN LE CONTE.

Our associate Dr. Woodhouse, some time ago gave me for examination a species of Bat found by him in the province of Honduras, which is undoubtedly the Noctilio dorsatus of Geoffroy de St. Hilaire, the Vespertilio leporinus of Linnæus, i. p. 47, although the description of "the illustrious Swede" is rather short and imperfect. Schreber vol. i. p. 163 tab. 60 describes and figures it as a Noctilio retaining the Linnean specific name. Wagner, in his supplement to the work of this last author vol. 1 p. 451, calls it N. dorsatus and considers it the same as the albiventris of Spix, Sim. et Ves. Brazil tab. xxxv. fig. 2 and 3, and the N. affinis of D'Orbigny Voy. vol. iv. p. 42 p. 12. The N. unicolor of Wagner is probably the same. Indeed the author observes, that it only differs in color from the other species which he describes; which is a matter of very little consequence in any of the Vespertilionidæ. Every species of this family is so variable in this respect as to forbid its being taken as a criterion of difference. There will therefore be but one species of this genus, and for the name of this we must revert to Linnæus and resume the old name of *leporinus*, although this appellation was founded in error, the upper lip not being cleft, but in recent specimens covering the incisors. In dried animals it shrinks and becomes drawn up in such a manner as to leave the upper fore teeth exposed, and to represent a very bad case of hare lip.

The animal from which the following description was taken, was in its most perfect state of development; at that period of its life when it would be called neither young nor old. It certainly had but two upper incisors nor was there any appearance of there ever having been any others; in their shape they resemble canines, and like them are furnished with an interior lobed calcaneum. The lower incisors are deeply emarginate and may in some instances be taken for four distinct teeth.

The upper fore teeth of Cheiropters offer a very interesting subject for investigation, whether what are so-called are in reality incisors, or not more properly canines. It is now generally allowed that no teeth ought to be called incisors unless they spring from the intermaxillary bone; now whether in those animals where there is no nasal bone and the front of the upper jaw is excavated, and this excavation reaching to the end of the os frontis, they can be said to have any os intermaxillare, I have not been able to determine. In the frugivorous bats which have regular incisors in the upper jaw, the cranium entirely wants this frontal excavation, and is furnished with nasal bones in as much perfection as any other mammal. The determination of this point must be left to others; it is sufficient that I have hinted at the circumstance. It appears to me that some species of Taphizous may belong to this genus; not however having specimens to compare I cannot pronounce positively. The generic essence of our animal,

exclusive of the teeth is the peculiar form of the alar membrane, which on the sides extends only to the middle of the tibia, and in the tail being shorter than the interfemoral membrane and in having its extremity free by passing through it near the middle.

There are very good representations of this animal in Schreber and in D'Orbigny. The figure in Seba vol. i. pl. lv. fig. 1, referred to by authors, has nothing to do with it.

In order to remove any difficulty which may hereafter occur in the determination of this species I add a detailed description, observing that very little reliance ought to be placed on the color.

Noctilio leporinus. Linn. Syst. Nat. i. p. 47, Noctilio dorsatus Geoffroy de St. Hilaire and Wagner, N. albiventris Spix, N. affinis D'Orbigny, N. unicolor Wagner.

Fur short and soft fulvous a little paler beneath, back with a very conspicuous narrow stripe of a paler and yellowish color from the base of the head to the root of the tail. The hair of the back occupies a triangular space the base of which lies between the shoulders and the apex reaches to the tail, leaving the sides naked. Beneath the whole body is covered with hair. Face black: nose broad, flat, emarginate, sulcate on the top; nostrils somewhat tubular and projecting; upper lip tumid confluent with the nostrils, hanging down and its dependant sides so placed as to form a wide excavation below the part which covers the incisors; it is not however cleft nor resembling a hare lip (unless it be shrunk and contracted upwards by the drying of the parts) lower lip very tumid, three lobed the lateral lobes recurved and crenate on their edge. Chin with a small semicircular appendage and four folds diverging from it. Cheeks with four small warts, each furnished with two bristles. Ears rather long, oval, blunt pointed, outer edge with four or five transverse plicæ the lower part with an upright rounded lobe; tragus small with a small branch on the inner side and four blunt teeth on the outer. Membrane thin, black, naked, not reaching as in most other bats to the carpus of the hind feet but ending about the middle of the tibia, on the under side it is whitish for a considerable space near the body, around the tail and along the hind legs: at the thumb, on the under side of the membrane on each side of the innermost figure is a small pouch or cavity formed by a narrow appendage or supplementary portion of the membrane which proceeds from the joint and runs down the wing for a short distance. Interfemoral membrane including the tail, broad rounded at the end with a small tooth on each side about one quarter of the distance from the middle. Tail not half as long as the interfemoral and projecting from the middle of the membrane for about one fifth of its length. Hind legs stout, feet very long toes with parallel claws very long and very much hooked calcaneum bordering the membrane for the greater part of its length.

Length of head and body 4 inches, head 1.2, extent 22.7, length of interfemoral 2 inches, tail 1.0, naked portion 2.0, foot 1.1, nail 35.

On Urnatella gracilis and a new species of Plumatella.

By Joseph Leidy, M. D.

In the Proceedings for November 1851, (page 321), I published the description of what I then suspected to be the cœnœcium of a new genus and species of fresh water bryozoid polyps, to which I gave the name of *Urnatella gracilis*. Since then I have examined this body and find my suspicion was correct; and *Urnatella* proves to be the most beautiful of the fresh water polyzoa which has yet been discovered. I have made drawings of the species, and propose hereafter to give a full description of it; and at present will simply give its diagnosis.

Urnatella, *Leidy*.

Cœnœcium consisting of a series of segments up to eighteen in number, and forming free, semi-erect, curved stems, attached only by the base of the lowest segment. Segments, excepting the three last ones, simple, uniform; the antepenultimate and the penultimate oblong, with simple or compound branches of

the same form; the last segment or active polyp is campanulate and is supplied with cylindrical, ciliated arms arranged in a circle around the mouth.

URNATELLA GRACILIS, *Leidy*.

Stems single, or in groups up to six in number, attached at the lower extremity by means of a sienna colored granular substance. Urniform segments .225 m.m. long by .18 m.m. broad, becoming smaller towards the free end of the stems; body portion of each urniform segment translucent whitish, with sienna colored transverse striæ and punctæ, and having on each side near the bottom a rounded process, the remains of former branches; the narrow top and bottom portion of the segments brown in color and annulated. The antepenultimate and penultimate segments and their branches oblong, translucent. Polyp .225 to .45 m.m. long, campanulate; expanded mouth circular, the diameter equal to the length of the body, surrounded by fourteen cylindrical, ciliated, retractile arms. Stems up to 4 m.m. in length.

Habitation.—On the underside of stones in the river Schuylkill below low water, in Philadelphia city.

PLUMATELLA VESICULARIS, *Leidy*.

Cœnœcium radiating and branching, attached, colorless and transparent; each segment slightly dilated and much broader than the protuberant orifices of exit. Length of the segments about 1 m.m., breadth 1 m.m. Animal colorless. Ova oval lenticular, (with an annulus but without spines.)

Habitation.—Found in the Schuylkill river with the preceding, on the under side of flat stones.

Remarks.—This species of *Plumatella* is as limpid as the water in which it lives; and it resembles rows of colorless vesicles with a whitish line passing through their axis. Frequently it is observed with rows of imbricated blackish eggs instead of the latter line. Patches are found from a quarter of an inch to two inches square.

Notices of new Reptiles from Texas.

By EDWARD HALLOWELL, M.D.

Family LACERTIDÆ.

Genus CNEMIDOPHORUS, *Dum. et Bib.*

Cnemidophorus guttatus, nob.

Char.—Head olive color; body greenish olive, with eight lines of the same color; intermediate spaces upon sides brown; sides presenting numerous white spots arranged in longitudinal rows; under surface dark blue, marked with white; of anterior extremities deep blue; of posterior extremities and of tail white; scales of the body very small; subgular fold margined with a row of large smooth scales; several smaller rows anterior to them; eight rows of scales upon the abdomen; 16 femoral pores on each side very distinct.

Dimensions.—Length of head 1 inch; greatest breadth ¾ in.; length of head and body to vent 3½ inches; of tail 4¼ inches; of anterior extremities 1 1-8th in.; of posterior 2¼ in.

Habitat.—Texas.

Gen. Obs.—Readily distinguished from Ameiva sexlineata; allied to Cnem. gularis, but the latter is without spots.

Family CROTALIDÆ.

Genus CROTALUS, *Linn.*

Crotalus ornatus, nob.

Char.—Three large plates in front of upper part of head on each side; nasals large; posterior part of head covered with smooth scales; rostral rather large; eighteen supralabials, the 6th, 7th and 8th the largest; a small plate between the rostral and first supralabial and anterior frontal; 27 rows of scales; ground

color slate or grayish above, with transverse, brown, lozenge-like bands, their external margins extending to the abdomen with intermediate yellow spots and yellowish markings enclosed within the brown, sometimes two in number; the brown lozenge-like spots become indistinct posteriorly and contain no yellowish spots, giving to this part of the upper portion of the body a sombre appearance, compared with the beautiful variegated robe of the rest; about 17 of these distinct brown lozenge-like spots may be counted upon the back; tail entirely black; throat and chin white; abdomen light straw color without spots, but shaded with grayish. 194 abdom. scut.; 3 bifid post-abdom. scut.; 19 subcaudal; 7 rattles in the present specimen.

Dimensions.—Breadth of head posteriorly 1¼ inches; length of head 1¾ inches; of body 3 feet 5 inches; of tail 2 inches; of rattle 1 inch.

Habitat.—Near Pecos River, N. W. Texas.

The reptiles above described were found by Dr. Heermann, Naturalist to the expedition for the survey of a railroad route to the Pacific, under command of Lieut. Parke, U. S. Top. Eng.

Descriptions of new Reptiles from Guinea.

By Edward Hallowell, M.D.

Family VIPERIDÆ.

Genus Echis *Merrem.*

Char.—Subcaudal plates in a single row; nostrils minute, in suture of two small scales; the anterior frontal shields minute, smooth; pupil round; eyes surrounded by small scales; supraciliary shields small, scale-like or single, elongated and distinct; scales elongate, keeled at the tip. (Gray.)

Echis squamigera, nob.

Sp. char.—Rostral plate much more extended in the transverse direction than vertically; eleven distinct plates along the margin of the upper jaw, of which the 5th, 6th, 7th and 8th are the largest; the inferior margin of the eye opposite to the 4th, 5th and 6th; eye surrounded with scales, of which the two anterior are the largest, and of nearly equal size; anterior genеials much narrower than the posterior; neck contracted; body slender, compressed, thicker in the middle, with 18 rows of lanceolate and strongly carinated scales; the lateral and inferior rows do not differ in size from the rest, and are also carinated; tail short and tapering with strongly carinated quadrangular scales.

Coloration.—Olive green above, darker upon the tail, the scales for the most part tipped with yellow; posterior half of body with numerous transverse yellow fasciæ, about half an inch apart.

Abdom. scuta 155; 1 præ-abdom. single; 1 post-abdom. bifid; 58 single plates under the tail.

Dimensions.—Length of head 1 inch; breadth ¾ inch; length of body 17½ inches; of tail 4 inches; circumference at middle 1¾ inches.

Habitat.—Near the river Gaboon, Guinea. One specimen, presented by M. P. Belloni Duchaillu.

Gen. obs.—This is evidently not the Echis pavo, or Echis varia of Reuss, Mus. Senkenberg., band 1, p. 157, 160. It has a certain resemblance to the figure of the Vipera pyramidarum, Descript. de l'Egypte, t. 7, fig. 1, but the scales upon the head in that figure are represented as all of the same size, and the markings upon the body are not the same. It has no resemblance to the Horatta Pam of Russell, Indian Serpents fig. 11. It is well characterized by the larger scales upon the vertex. But two species of Echis have been heretofore described.

Fam. HYLADÆ.

Hyla punctata, nob.

Gen. char.—Head large, depressed; eyes very large and prominent; skin smooth, for the most part above, with a few small scattered tubercles, quite

abundant, however, upon the thighs; tongue cordiform, quite free posteriorly, emarginate; two bunches of teeth upon the palate between the posterior nares; posterior nasal apertures large; eustachian foramina quite distinct; fingers slightly webbed; terminal pellets large; subarticular tubercles very prominent, third finger longest, fourth longer than the second, second longer than the first. Toes palmated, the web of the fourth extending to the distal extremity of the penultimate phalanx; toes more slender than the fingers, and the terminal pellets much less developed; typanum distinct; tibia about a line shorter than the femur; abdomen and under surface of the thighs very thickly granulated.

Coloration.—Uniform brown above, with a few sparsely scattered and small orange colored spots; a narrow yellow orange colored vitta extending from the elbow along the external border of the fourth finger; a similar one, but less distinct, along the external border of the tarsus; color of under surface Indian yellow, deeper upon the abdomen and thighs.

Dimensions.—Length of head $\frac{4}{5}$ of an inch; greatest breadth $\frac{3}{5}$ inch; length of head and body 2 inches; of posterior extremities 3 inches; of anterior $1\frac{1}{2}$ inches.

Habitat.—Near the Gaboon River, Guinea. A single specimen presented by M. P. Bellonni Duchaillu, with other species of reptiles and numerous fishes, crustaceans and worms from the same locality.

DONATIONS TO MUSEUM

In August, 1854.

August 1st.

Very large specimen of Testudinaria elephantipes. From Mr. James Dundas.

A collection of Cretaceous Fossils from Alabama; also a collection of Fossils from the Eocene of Virginia. Presented by Mr. Joseph Jones, of Georgia.

Fruit of Quercus ———, from Greece. From Dr. P. B. Goddard.

A collection of fresh-water Shells, from Buenos Ayres. From Dr. Kennedy.

Crotalophorus Kirtlandii. From Prof. Holbrook.

August 8th.

A collection of Cretaceous Fossils from Dallas Co., Texas. From Mr. A. Goubenaut.

Silurian Fossils from Shenandoah Co., Virginia. From Dr. J. C. Fisher.

Condylura cristata from Maine. From Mr. John Merrick.

Centipede, a Mygale, and Hymenopterus insects from Dallas Co., Texas. From Dr. Chas. R. Pryor.

Fossils from San Pedro and Santa Barbara, California; fragments of Fossil wood and two species of fossil Ostrea, from the Desert of the Colorado; specimens of Lead and Fluor from Mesilla Valley, N. M.; Copper Ore from Sonora, Mexico; Cinnabar from San Joaquin, California, and fragment of Meteoric Iron from an annular mass weighing 1200 lbs., at Teucson, Mexico; also an Indian Cranium from Pinos village, Mexico. Presented by Dr. A. L. Heermann.

August 22d.

Five specimens of Birds and three Mammals, from Honduras. Presented by Mr. Amory Edwards.

Coal Fossils, from Boone Co., Virginia. From Mr. T. F. Moss.

Two specimens of Crotalophorus Kirtlandii, from Ohio. Presented by Prof. Kirtland.

DONATIONS TO LIBRARY

In July and August, 1854.

July 4th.

Quarterly Journal of the Geological Society of London. No. 38. From the Society.

Proceedings of the Boston Society of Nat. History, vol. 4, pp. 337—352 and 401—416; Index and title page, vol. 4. From the Society.

American Journal of Science and Arts, July, 1854. From the Editors.

July 11th.

The following were presented by Dr. Wilson, on the usual condition:

Revue et Magasin de Zoologie, 1853, No. 10.

Comptes Rendus. Tome 38, No. 21.

Annals and Magazine of Natural History. May and June, 1854.

Annales des Sciences Naturelles. Tome 20, No. 6.

Schreber "Die Säugthiere" Fortgesetzt von Wagner. Supplementband, 5 Abth. 2, 3, 4, 5, 6, 7 Lief.

Naumannia. Archiv. für die Ornithologie vorzugsweise Europa's. Herausg. von F. Baldanus. 1853, No. 3.

London, Edinburgh and Dublin Philosophical Magazine. May and June, 1854.

Conchologia iconica. By Lovell Reeve. Nos. 127, 128, 129.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Von W. Dunker und H. Von Meyer. 4 band, 1ste lief. 4to.

Illustrations of the Birds of California, &c. By John Cassin. No. 5.

Hymenoptera Europœa, præcipue Borealea ab A. G. Dahlbom. 2 vols. 8vo.
Histoire naturelle generale des Genres Organiques. Par M. Isidore Geoff. St. Hilaire. Tome 1er, 8vo.
Recherches sur la génération des Huitres. Par C. Davaine.
Orthoptera Europœa. Auctore L. H. Fischer. 4to.
Conspectus Systematicus Orthopterorum Europæ. Auctore L. H. Fischer.

July 18th.

Proceedings of the American Philosophical Society, Jan. to June, 1854. From the Society.
Proceedings of the Boston Soc. of Nat. History, vol. 4, pp. 353—400. From the Society.
Report of the Geology of the Coast Mountains and part of the Sierra Nevada. By Dr. J. B. Trask. From the California State Superintendent of Public Instruction.
Observations on the genus Unio. By Isaac Lea. Vol. 3. 4to. (To complete the copy in the Library.) From the Author.
Description of a new species of the genus Unio. By Isaac Lea. From the Author.
Description of nineteen new species of Colimacea. By Isaac Lea. From the Author.
Smithsonian Contributions to Knowledge. Vol. 6. 4to. From the Smithsonian Institute.
New Orleans Medical and Surg. Journal, for July, 1854. From the Editors.

August 1st.

Transactions of the American Ethnographical Society. Vol. 3, part 1. 8vo. From the Society.
Charleston Med. Journal and Review for July, 1854. From the Editors.
Virginia Medical and Surgical Journal, Vol. 3, No. 3. From the Editors.
Gelehrte Anzeigen. Herausg. von Mitgl. der k. bayer. Akad. der Wissen. Band 36, 37. 4to. From the Academy.
Bulletin der k. Akad. der Wissen. Jahrgang 1853. 4to. From the same.
Rede zur Borfeyer des hohen Geburtsfestes Sr. Maj. des K. Maximilian II von Bayern 26 Nov., 1853. Von Fried. v. Thiersch. From the same.
Wegweiser für die Besucher des k. Botanischen Gartens in Munchen. Von Dr. C. F. P. von Martius. 12mo. From the same.
Afrika von den Entdeckungen der Portugiesen. Von Dr. Fr. Kunstmann. From the same.
Ueber die Bewegung der Bevölferung im Königreiche Bayern. Von Dr. F. von Hermann. From the same.
Comptes Rendus. Tome 38, Nos. 22, 23. From Dr. Wilson.
London Athenæum for June, 1854. From the same.
Annales des Sciences Naturelles. 4me serie, tome 1, Nos. 1, 2, 3. From the same.
Journal of the Franklin Institute for July 1854. From the same.

August 8th.

Arboretum et Fruticetum Britannicum, or Trees and Shrubs of Great Britain. By J. C. Loudon. 8 vols. 8vo. Deposited by Mr. A. Brazier.
The Metallic Wealth of the United States. By J. D. Whitney. 8vo. From the Author.
The Microscopist; or a complete manual on the use of the Microscope. By Jos. Wythes, M.D. 12mo. 2d edition. From the Author.

August 22d.

Novorum Actorum Acad. C. L. C. Nat. Curiosorum, Vol. 24 pars 1. 4to. From the Academy.
Mémoires de la Société de Physique et d'Histoire Nat. de Genéve. Tome 13, part. 2. 4to. From the Society.

Mémoires de la Société du Museum d'Hist. Nat. de Strasbourg. Tome 1, 2, 3 et livs. 2, 3 du Tome 4. 4to. From the Society.

Jahrbuch der k. k. Geologischen Reichenstalt. 1853, 4 Jahrgang, No. 3. From the Institute.

Wurttembergische naturwissenschaftliche Jahreshefte. 1850, No. 3. From the Society.

Ornithologische Notizin, von J. Cabanis. 1, 2, 8vo. From the Author.

Portions of "Ersch und Gruber's Encyclopædia," containing ornithological descriptions and notices by Dr. Cabanis. From Dr. Cabanis.

Ueber die in Oberkalifornien beobachteten Vögel, von Wm. Gambel. (Aus dem Proceed. Acad. Nat. Sci. Philada. Vol. 3) mit Bemerkungen von J. Cabanis. From the same.

Nomenclator Avium Musei Zoologici Berolinensis (Dr. H. Lichtenstein.) From the Author.

Verzeichniss der Doubletten des Zoologischen Museums der k. Universitat zu Berlin. Von Dr. H. Lichtenstein. From the Author.

Notice sur une nouvelle espéce de Singe d'Afrique. Par P. J. Van Beneden. From the Author.

The Tourist's Guide to the chief Towns and Villages of the Island of Jamaica. By G. Annaboldi.

The following were presented by Dr. Wilson, on the usual condition:

Comptes Rendus. Tome 38, Nos. 25, 26; Tome 39, No. 1.

London Athenæum for July, 1854.

London, Edinburgh and Dublin Philosophical Magazine, July, 1854, and Supplementary number.

Annals and Magazine of Natural History, July, 1854.

Quarterly Journal of Microscopical Science, No. 8.

Naumannia. Archiv für die Ornithologie vorzugsweise Europa's. Von E. Baldamus. 1854, 1es quartal.

Annales de la Société Entomologique de France. 3me serie, tome 1. 8vo.

Journal of the Franklin Institute for August 1854.

Synopsis Muscorum Frondosorum omnium hucusque cognitarum. Auctore C. Muller. 2vols. 8vo.

DONATIONS TO MUSEUM

In September and October, 1854.

September 12th.

A collection of about 1500 specimens of American and European Lepidoptera. Presented by John A. Guex, Esq.

Seventy species of Land Shells, chiefly from the Island of Madeira. Presented by Dr. Albers, of Berlin, through Mr. I. Lea.

September 19th.

Six specimens of Kinixis denticulata (erosa Bell;) two of Chamæleo dilepis Leach; two of Monitor niloticus, two of Euprepis Blandingii; an undetermined species of Echis, one of Hyla, Leptophis smaragdina, Dryophis Kirtlandii and Rana Bibronii. All from the Gaboon country, West Africa, and presented by M. Bellonni Duchaillu.

Also from the same locality, by the same donor, a collection, in spirits, of Crustacea, one of Fishes, and several Mammalia.

Mounted specimen of Geomys Oregunensis, from Iowa. From the Iowa Lyceum, through Dr. A. Shaw.

Crotalus durissus, from near Pemberton, N. J. From Dr. Coleman, of Pemberton.

Specimen of Sand from the Artesian Well at St. Louis, from a stratum 8 feet thick, 2200 from the surface. From Mr. Isaac Lea.

October 3d.

Three specimens of Sceloporus (Tropidolepis) undulatus; two living specimens of Tropidonotus sipedon (young;) a living specimen of Heterodon platyrhynos, very darkly colored, but when exposed to a strong light presenting the marks of platyrhynos; a living young specimen of H. platyrhynos; a living young Coryphodon constrictor, (Col. constrictor Linn.;) thirteen specimens of Heterodon platyrhynos, in spirits; two young Tropidonotus sipedon, in spirits; Herpetodryas æstivus; five remarkably fine specimens of Coryphodon constrictor. All from Beesley's Point, N. Jersey, and presented by Mr. Samuel Ashmead.

Tropidonotus rhombifer and T. transversus, from the borders of the Arkansas River; Stenodactylus fuscus, several specimens; Iguana tuberculata Laurenti, Cyclura denticulata Wiegmann, Zamenis tricolor, Microphis quinque-lineatus, Elaps zonatus and Elaps divaricatus, and two specimens of Elapoidis fasciatus. All from Central America, and presented by Dr. Woodhouse.

October 10th.

Skull of an Alligator, from Venezuela. Presented by Dr. A. J. Dietz.

Nummulitic Limestone, from near Florence. From Mr. Lea.

The fossil fragment upon which was established the Camelops Kansanus, from Kansas Territory. Presented by Henry Pratten, Esq., of New Harmony, Indiana.

October 17th.

Sceloporus biseriatus, var. azureus, Phrynosoma coronatum, Urosaurus graciosus, Gerrhonotus multicarinatus, Cnemidophorus undulatus, Utah stansburiana, Tropidonotus parietalis, Tropidonotus ordinatus, Coronella balteata, Crotalus cerastes, Crotalus Lecontei, Rana longipes, Hyla nebulosa, Hyla scapularis, Bufo halophyla, Crotaphytus fasciatus, Dipso-saurus dorsalis, Eumeces quadrilineatus. From California, and presented by Dr. Heermann.

A specimen of Crotalus tergeminus Say, presented by Col. McCall, and two specimens of the same species by Prof. Kirtland, of Ohio.

Fossil Cetacean vertebra, from the banks of the Potomac River, Virginia. Presented by Mr. Gilliams.

Hippocampus Hudsonius, and Diodon maculo-striatus, from New Jersey coast. From A. L. Heermann, M.D.

A Portrait of Charles Alexandre Lesueur; painted by Charles Wilson Peale for his Museum Gallery, in 1817 or 1818. Presented by Mr. George Ord.

October 24th.

Nasua solitarius, from South America. Presented by Dr. Leidy.

Spermophilus tridecimlineatus, from Arkansas. From J. D. Sergeant, Esq.

Belone truncata, from Chesapeake Bay. From Mr. Aubrey H. Smith.

A collection of Plants from New Holland. Presented by Mr. Kilvington.

A valuable collection of Marine Shells from the Sandwich Islands. Presented by Dr. Le Conte.

The following Fishes, from California, were presented by Dr. A. L. Heermann:

Cottopsis gulosus, Clupea mirabilis, Pogonycthys inequælobus, Gadus proximus, Labrax clathratus, Holconotus rhodoterus, Apodycthys violaceus, Sebastes rosaceus, Embiotoca lineata, Gunellus ornatus, Porycthys notatus, Sebastes fasciatus, Sphyræna argentea, Belone exilis, Scorpæna guttata, Anarrhichas felis, Blennius gentilis, Scorpænicthys marmoratus.

November 14*th*, 1854.

The President, Mr. ORD, in the Chair.

A paper was presented for publication from Mr. Charles Girard, entitled, "Characteristics of some Cartilaginous Fishes of the Pacific Coast of North America," which was referred to Dr. Rand, Dr. Hallowell and Dr. Leidy.

A communication was read from the Berlin Horticultural Society, dated Berlin, Sept. 25th, 1854, transmitting donations to Library, and proposing exchanges. Referred to Committee on Proceedings.

November 21*st*.

Vice-President BRIDGES in the Chair.

Letters were read—

From the Royal Academy of Sciences of Liege, dated 8th July, 1854, accompanying their donation acknowledged this evening; and also acknowledging the receipt of the publications of the Academy.

From the Imperial Academy of Sciences of Vienna, acknowledging the receipt of the publications of the Academy, and desiring missing numbers of the same.

From Dr. J. G. Flügel, dated Leipzig, August 1, 1854, in relation to certain charges for transmission of foreign works for the Academy.

A paper was read from Mr. Charles Girard, intended for the Proceedings, being an "Abstract of a Report to Lieut. Gilliss, U. S. N., upon the Fishes collected during the U. S. Astronomical Expedition to Chili." Referred to Mr. Cassin, Dr. Le Conte, and Dr. Hallowell.

Dr. Leidy read a paper intended for publication in the Proceedings, entitled, "Notice of some fossil Bones discovered by Mr. Francis A. Lincke, in the banks of the Ohio River, Indiana." Referred to Major Le Conte, Dr. Zantzinger, and Dr. Coates.

The following resolution was unanimously adopted: *Resolved*, That the thanks of the Society be tendered to Mr. John A. Guex, for the very extensive and superb collection of Coleopterous Insects, presented by him this evening to the Academy.

November 28*th*.

Vice-President BRIDGES in the Chair.

The Committee on Dr. Holbrook's "Descriptions of Fishes of Florida," reported in favor of publication in the Journal.

The Committees on Mr. Girard's papers, read 14th and 21st insts.; and on Dr. Leidy's paper, read 21st inst., reported in favor of publication in the Proceedings.

Characteristics of some Cartilaginous Fishes of the Pacific coast of North America.

By CHARLES GIRARD.

1. CESTRACION FRANCISCI, G.—The largest of these specimens now before us, and measuring nearly two feet, bears a very strong resemblance to *C. Phillippi*, though of a somewhat more bulky appearance. The bony ridge, above the eye, is much more developed, and the fins are larger also. The posterior margin of the caudal is bilobed instead of being rounded: an emargination corresponding to the top of the vertebral column. The anal is placed farther back; its tip projecting beyond the anterior margin of the inferior lobe of the caudal. The posterior extremity of the ventrals extends beyond the anterior margin of the second dorsal. Color, above yellowish grey, darker in the young; beneath light yellow. Small roundish black spots are spread all over the body and fins.

Collected by Lt. W. P. Trowbridge, U. S. A., in the Bay of Monterey, Cal.

2. TRIAKIS SEMIFASCIATUM, G.—This species is closely allied to *T. scyllium*, from which it differs by a more backward position of the mouth or else a more developed snout. The chagrin which covers the surface of the skin is more acute, giving to the fish a more prickly aspect. Color above olivaceous grey, lighter beneath; yellowish under the head and throat. Dorsal region marked by transverse bands of deep black, with spots of the same hue between the bands, and also beneath them, along the sides of the body. A black spot exists at the base and upper surface of the ventrals and pectorals. The caudal is spotted all over, whilst the dorsals and anal are so only at their base.

Specimens were collected near Presidio, in the Bay of San Francisco, Cal., by Lt. W. P. Trowbridge, U. S. A.

3. SPINAX (ACANTHIAS) SUCKLEYI, G.—Specimens about twenty nine inches long. Snout very much flattened, elongated, and subconical in its outline when viewed from above. Eyes very large, elongated and placed immediately in advance of the mouth. Five branchial apertures well developed. Mouth large. Dorsal fins moderate; spine of anterior dorsal rather small. Pectorals very large and expanded, concave upon their posterior margin. External margin of ventrals rounded. Inferior lobe of caudal deeply emarginated; upper lobe long and lanceolated. Color above of a dark grey with a few small whitish spots; beneath, under the head and belly, dull yellowish; farther back, of a light greyish hue.

Collected at Fort Steilacoom, Puget Sound, W. T., by Dr. Geo. Suckley, U. S. A.

4. RHINOBATUS PRODUCTA, Ayres, in Proc. Cal. Acad. Sc. I. 1854.—A male specimen, thirty eight inches in total length, brought this species to our knowledge. The rostral distance, from the eyes forwards, is of a much lighter hue than the rest of the body. A blackish band exists along the middle of the back, with diffused blotches upon the sides, and a double band of the same color along the middle of the snout.

Collected either at Presidio or Monterey, Cal., by Lt. W. P. Trowbridge, U. S. A.

5. RAJA BINOCULATA, G.—Transverse diameter, from tip of one pectoral fin to the other, greater than the longitudinal, from tip of snout to the extremities of the ventrals. Snout tapering and rounded anteriorly. Eyes moderate; orbit surrounded with spines. A spine upon the dorsal line, near the origin of the trunk. Tail longer than the body and head together, slender and flattened most of its length; provided above with a series of spines extending from its origin to the base of the first dorsal fin. Second dorsal within a short space of the first and approximating the tip of the tail. Ground color olivaceous brown; snout dull whitish. A large subcircular black ring at the base of pectorals enclosing a large subcircular black spot. At a short distance behind these may be seen a much smaller and more obsolete subcircular dark ring, clouded within with

blackish. Beneath dull yellowish; external margin of ventrals blackish. Dorsal fins olivaceous; extremity of caudal blackish with a lighter margin.

Collected by Dr. A. L. Heermann, at San Francisco, Cal., while attached to the Pacific Railroad Survey under Lt. R. S. Williamson, U. S. A.

Abstract of a Report to Lieut. Jas. M. Gilliss, U. S. N., upon the Fishes collected during the U. S. N. Astronomical Expedition to Chili.

By CHARLES GIRARD.

PERCIDÆ.

Genus PERCICHTHYS, Girard.

Body oblong or elongated, compressed, covered with scales of medium development, finely ciliated upon their posterior margin. Snout rather thick and blunt, overlapping slightly the lower jaw; card-like teeth on the jaws; velvet-like teeth disposed upon a transverse band in front of the vomer, and upon a narrow band along the palatines, sometimes only towards the anterior extremity of these latter bones. Tongue smooth. Upper surface of head, suborbitals and posterior dilatation of the upper maxillary, covered with scales as well as the cheeks and opercular apparatus. Suborbital and preopercle serrated. Opercle provided with a spine. Branchiostegals six or seven in number. Two dorsal fins contiguous at their base. Insertion of ventral fins immediately beneath the base of pectorals. Anal fin provided with three spiny rays.

1. PERCICHTHYS CHILENSIS, G.—*Perca trucha*, GUICH. in *Gay*, Hist. de Chile, Zool. II. 1848, 146, Ictiol. Lam. I. bis. fig. 1.—Snout subconical, obtuse anteriorly, and slightly overlapping the lower jaw. Mouth well developed. Posterior extremity of upper maxillary fetching the vertical of the centre of the pupil. Limb of preopercle conspicuously serrated. Exterior margin of sub- and interopercle inconspicuously so. Soft portion of anal deeper than the height of the second dorsal. Caudal moderately emarginated posteriorly. Branchiostegals seven. Ground color yellowish; upper regions covered with brownish or blackish diffused spots.

Inhabits the fresh waters of Chili.

2. PERCICHTHYS MELANOPS, G.—Mouth of moderate size; posterior extremity of upper maxillary reaching the vertical of the anterior rim of the orbit. Palatine teeth occupying but a small area towards the anterior extremity of these bones. Opercular spine not very conspicuous. Branchiostegals six. Ground color whitish, minutely and densely dotted with black; dots crowding upon the middle of the scales under the shape of a central blotch, giving to the whole fish quite a dark hue.

Caught in a tributary of the Rio de Maypo, Chili.

Genus PERCILIA, Girard.

General physiognomy percoid, body compressed. Two dorsal fins contiguous at their base, broadly separated in their outline. Mouth rather small or else of medium size; jaws subequal. Small conical teeth upon the maxillaries, and a few card-like ones upon the front of the vomer, none on the palatines. Tongue smooth. A few minute spines along the limb of the preopercle. Opercle without any spine. External edge of suborbitals, sub- and interopercle not crenated. Branchial aperture of either side continuous under the throat. Branchiostegals five or six in number. Scales quite large, and posteriorly ciliated. Cheeks and opercular apparatus scaly; top of head nearly smooth and naked. Suborbitals and maxillary scaleless. Insertion of ventrals behind the base of pectorals. Caudal posteriorly subcrescentic.

3. PERCILIA GILLISSI, G.—Snout short and rounded, mouth small; posterior extremity of upper maxillary corresponding to the vertical of the anterior rim

of the eye. A few minute spines upon the angle of preopercle. Scales large, conspicuously ciliated posteriorly. Ground color light reddish or reddish brown, maculated with black.

Inhabits the hydrographic basin of the Rio de Maypo, Chili.

ATHERINIDÆ.

This family heretofore composed of the single genus *Atherina*, having been made on our part the subject of much research, is now understood by us in the following manner. The

Genus ATHERINOPSIS, Girard,

Which we have recently established, is to receive such species as have no palatine teeth, with both jaws equal, and the snout more or less rounded.

Atherina menidia, LINN., and *A. notata*, MITCH., will come under this denomination, alongside with *A. californiensis*, Girard. The

Genus BASILICHTHYS, Girard,

is characterised by the protrusion of the upper jaw beyond the lower; adding to that feature small teeth on both jaws, none on either the vomer or palatines, the intermaxillaries constituting the upper arcade of the mouth, with the maxillaries placed behind them, and the upper surface of the head scaly; including:

4. BASILICHTHYS MICROLEPIDOTUS, G.—*Atherina microlepidota*, JEN. Zool. of Beagle, iv. Fish. 1842, 78. Pl. xvi. fig. 1, 1 a. 1 b.—GUICH. in *Gay*, Hist. de Chile, Zool. II. 1848, 253.

Inhabits the fresh waters of Chili.

And also *Atherina laticlavia*, CUV. & VAL.; *A. argentinensis*, CUV. & VAL.; *A. macrophthalma*, Agass.; *A. bonariensis*, CUV. & VAL. and *A. lichtensteinii*, CUV. & VAL. Finally the

Genus HETEROGNATHUS, Girard,

Is based upon the elongation of the lower jaw which projects considerably beyond the upper one. There are either no teeth on the palate or else they exist in a very rudimentary state only.

Atherina humboldtiana, CUV. & VAL., and *A. vomerina*, CUV. & VAL., will, for the present, constitute this genus.

SILURIDÆ.

Genus NEMATOGENYS, Girard.

Head very much depressed and large. Body posteriorly compressed; posterior margin of caudal fin rounded. Anal opposite space between the dorsal and caudal. Ventrals under the dorsal. Mouth broad but not deeply cleft; its angle provided with a long barbel. A second pair of subhyoidal barbels shorter than the buccal ones. A still shorter and prenasal barbel constituting a third pair of these appendages. Intermaxillaries and dentaries provided with a patch of card-like teeth. Pharyngobranchials covered with similar asperities. Eyes rather small, situated on the upper surface of head. Opercular apparatus spineless. Branchial apertures continuous under the throat. A spine at the external margin of the pectoral fins. Skin scaleless.

5. NEMATOGENYS INERMIS, G.—*Trichomycterus inermis*, GUICH. in *Gay*, Hist. de Chile, Zool. II. 1848, 312, Ictiol. Lam. ix. fig. 2.

Inhabits the fresh waters of Chili.

Genus TRICHOMYCTERUS, (Humb.) Valenc.

Head depressed and rather small. Body anteriorly rounded; posteriorly compressed. Caudal fin emarginated or subemarginated. Anal under the posterior part of the dorsal, and ventrals in advance of the latter. Mouth small or of medium size, inferior, and provided with a double pair of barbels at its angle.

No barbels under the head. One pair of prenasal barbels. Velvet-like teeth upon the intermaxillaries and lower jaw. Palate smooth. Eyes very small, situated on the upper surface of head. Opercular apparatus prickly. Branchial openings not continuous under the throat. Fins without any spiny rays. Skin scaleless and smooth.

6. TRICHOMYCTERUS MACULATUS, Cuv. & Val. Hist. Nat. Poiss. xviii. 1846, 493. —GUICH. in *Gay's* Hist. de Chile, Zool. II. 1848, 311.
Caught in the Rio Mapocho, near Santiago, Chili.

CLUPEIDÆ.

7. ALOSA MUSICA, G.—Body subfusiform, elongated, compressed and tapering posteriorly. Origin of ventrals opposite the middle region of dorsal. Posterior extremity of upper maxillary reaching the vertical of anterior rim of pupil. Lower jaw longest. Back bluish; sides silvery. A series of from nine to eleven roundish spots along the sides.
From Caldera Bay, Chili.

8. ENGRAULIS PULCHELLUS, G.—Body subfusiform, slender and compressed. Origin of ventrals situated in advance of anterior margin of dorsal. Vent immediately opposite the hind margin of same fin. Scales higher than long. Dorsal region purplish; sides of head and body silvery.
From Caldera Bay, Chili.

CHARACINI.

Genus CHEIRODON, Girard.

Body compressed: abdomen not serrated. Adipose fin present. Teeth upon the maxillary, the intermaxillary and the dentary; disposed in a single series along both jaws, and dilated towards their edge, which exhibits generally five acute points. No canine. Palate without teeth. Scales large. Gill openings large. Branchiostegal rays three in number. Pharyngeal teeth velvet-like, very minute. Dorsal fin situated between the ventrals and the anal.

9. CHEIRODON PISCICULUS, G.—Snout short and rounded; eyes rather large. Maxillary teeth very small and few. Dorsal fin higher than long. Caudal forked. Anal nearly as deep as long. Ventrals and pectorals slender. Scales proportionally very large, higher than long. A silvery band along the middle of the flanks, margined above with black. Fins unicolor, olivaceous.
Inhabits the ponds in the vicinity of Santiago, Chili.

MYXINOIDEA.

10. BDELLOSTOMA POLYTREMA, G.—Fourteen respiratory apertures and gills on either side. Twelve teeth on either side in the posterior, as well as in the anterior row. Eyes present. Color not preserved in the specimen before us.
From the Bay of Valparaiso, Chili.

Notice of some Fossil Bones discovered by Mr. Francis A. Lincke, in the banks of the Ohio River, Indiana.

By JOSEPH LEIDY, M.D.

Through the kindness of my friend, Dr. J. G. Norwood, of New Harmony, Indiana, I have had the opportunity of examining a collection of fossil bones, which were obtained by Mr. Francis A. Lincke, from the banks of the Ohio River, near the mouth of Pigeon Creek, a short distance below Evansville, Indiana. The bones are usually found in this locality sticking in the bank, when the water in the river is low.

The specimens are thoroughly impregnated with oxide of iron, which also serves as a cement to adhering pebbles, sand, fragments of Unios, and shells of the species of *Melania canaliculata*, *Paludina ponderosa*, etc.

The collection contains bones of the following animals :—

MEGALONYX JEFFERSONII, *Harlan*.

a. Two tibial diaphyses of the left side of young individuals.
b. A vertebra dentata.
c. A fragment of an os calcis.
d. A metacarpal and a metatarsal bone.
e. An ungual phalanx.

BISON AMERICANUS ? (*fossilis*).

a. A fragment of a cervical vertebra.

CERVUS VIRGINIANUS (*fossilis*).

a. Proximal half of a tibia.
b. Distal half of a tibia.
c. Proximal half of a metacarpal bone.
d. Proximal and distal halves of two metatarsal bones.
e. Portions of two scapulæ.
f. Proximal portion of a first rib.
g. The mutilated cranium of a doe.
h. The superior portion of the cranium of a buck; the antlers having been shed.
i. Three portions of as many lower jaws of different ages. One contains the back five molars very much worn away; a second contains the last two molars a little worn; and the third contains all the molars, but the last temporary one has not been shed, nor is the last true one protruded. All these specimens correspond in size with the same parts of large individuals of the existing *Cervus virginianus*, and have the same form; and they probably belonged to the same species. Besides these specimens, fossil bones of a deer not larger than the *Cervus virginianus* have been found in association with bones of the *Megalonyx*, *Mastodon*, &c., in the vicinity of Natchez, Mississippi. In the cabinet of the Academy there are several specimens from this locality, consisting of a portion of a lower jaw, a fragment of an antler, and the posterior and inferior portions of two crania.

EQUUS AMERICANUS, *Leidy*.

a. The last dorsal vertebra.

TAPIRUS.

a. An inferior back molar tooth of an old individual. The crown is much worn and the fangs are long, spreading, and thickened. It is larger than in the recent *Tapir americanus*, and belongs to the supposed extinct species which I have designated as *Tapirus Haysii*.

CANIS PRIMÆVUS, *Leidy*.

This name is proposed for a species of wolf, which I suppose to be indicated by a specimen, in Mr. Lincke's collection, of a left upper maxillary bone containing the posterior five molars, all of which are nearly entire except the penultimate one. The fragment, however, only differs from the corresponding part of the recent *Canis lupus* of Europe and its American congeners, in being rather larger (about one sixth), and in its having slight variations in several of the molar teeth. Certain naturalists may regard the fossil as an indication of a variety only of the *Canis lupus*, and of the correctness of such a view I shall not attempt to decide. Naturalists have not yet settled among themselves the question of how far characters of a specific value may be obtained from the skulls and teeth of many genera. Most naturalists regard the *Canis lupus*, of Europe, and the *Canis occidentalis* and many other wolves of America as of the same species. Certainly they possess no important osteological differences, but the same may be said of the grizzly bear, the polar bear, and the brown bear, or of the horse, the ass, and the zebra, or of the lion, the tiger, and the panther, etc., etc. Those who have attempted to define a species, I think, have gene-

rally given too much value to a mere convenient word, with which naturalists empirically designate groups of organized beings possessing characters of comparative constancy, so far as historic experience has guided them in giving due weight to such constancy.

The question of the origin of species, whether from a single pair or from a plural stock, whether by ascent from the lowest form of life, in gradually diverging series, or whether through innumerable miraculous interpositions, I think is entirely independent of the former question.

To return to the fossil; the maxilla has the same form externally as in the corresponding bone of the recent wolves with which I have compared it. The infra-orbital foramen is on a line vertical to the interval between the third and fourth molar teeth, which is slightly farther back than in any of the skulls of recent wolves examined.

The penultimate molar is less concave posteriorly than in our recent specimens; and its antero-posterior diameter internally is greater in relation to the same diameter externally; in other words, the tooth internally is less narrowed than in recent wolves. It is also broader in the antero-posterior diameter when compared with its transverse diameter. Its basal ridge externally is more abrupt and is slightly mammillated at its border. The second and third molars have their basal ridge internally more developed, which is also the case with the internal oblique ridge descending towards the cusp anteriorly.

The principal measurements of the fossil, in comparison with those of the corresponding part in recent wolves are as follows:

MEASUREMENTS.	Canis lupus, of Europe.	Canis occidentalis, of Pennsylvania.	White Wolf, from Nebraska.	Canis gigas, Townsend, from Oregon.	Canis primævus, (fossil.)
	lines				
From base of crown of third molar to the upper margin of maxilla,	24	21	24	26	31
From base of crown of fourth molar to upper margin of maxilla,	36	30	34	36	41
From back of last molar to canine alveolus,	43	39½	42½	46	53
From back of last molar to front of second molar,	37	34½	35½	39	45
Antero-posterior diameter of penultimate molar externally,	8	7½	8	8	9
Ditto, at middle,	6½	5½	6	6	7½
Breadth of do.	10½	10	10½	10½	11½
Antero-posterior diameter of ante-penultimate molar	13	11½	12½	13	16

On motion of Mr. Foulke, it was *Resolved*, That a copy of the Proceedings of the Academy be presented to the Natural History Society of Schuylkill Co., Penn., at Pottsville.

ELECTIONS.

Dr. Thomas Newbold, Mr. Francis Fassitt, and Mr. John A. Guex, all of Philadelphia, were elected *Members;* and Mr. S. S. Rathvon, of Lancaster, Penn., Mr. R. K. Winslow, of Cleveland, Ohio, and Prof. E. Brücke, of Vienna, were elected *Correspondents.*

December 5th.

Vice-President BRIDGES in the Chair.

Letters were read—

From the Royal Academy of Sciences of Amsterdam, dated 7th Sept., 1854, accompanying their donations acknowledged this evening.

From the City Library, Leipsic, dated 2d Oct., 1854, acknowledging the receipt of the Proceedings of the Academy.

From the New York State Library, dated 28th Nov., 1854, acknowledging the receipt of the last number of the Proceedings.

From Mr. John Landis, dated Hempfield, Penn., transmitting some minerals from that vicinity, and requesting an examination thereof.

From Prof. B. L. C. Wailes, dated Washington, Miss., acknowledging the receipt of his notice of election as a Correspondent of the Academy.

From Dr. Bennett Dowler, dated New Orleans, 1st Nov. 1854, transmitting two specimens of fœtal fishes, with a printed description of viviparous fishes found in Louisiana.

Dr. Leidy read a paper intended for publication, entitled, "Remarks on the identity of Bootherium cavifrons with Ovibos moschatus, or O. maximus." Referred to Dr. Le Conte, Mr. Foulke, and Dr. Hallowell.

Dr. Leidy exhibited a drawing of a species of *Hydrachna*, which he had found in various conditions of development in the mantle of *Unio purpureus*. They were very numerous, some specimens containing a thousand or more.

December 12th.

Vice-President BRIDGES in the Chair.

A letter was read from Mr. Eugene Borda, dated Minersville, Penn., Dec. 1854, acknowledging the receipt of his notice of election as a Member.

Dr. Le Conte presented two papers for publication in the Proceedings, severally entitled, "Descriptions of the species of Trox and Omorgus inhabiting the United States," and "Some corrections in the Nomenclature of Coleoptera found in the United States;" both of which were referred to Mr. Cassin, Dr. Zantzinger, and Prof. Baird.

A paper from Mr. Girard, intended for publication, was presented, entitled, "Abstract of a report to Lieut J. M. Gilliss, U. S. N., upon the Reptiles collected during the U. S. Naval Astronomical Expedition to Chili." Referred to Dr. Hallowell, Mr. Lea, and Major Le Conte.

December 19th.

Vice-President BRIDGES in the Chair.

Letters were read—

From Lieut. G. H. Hare, dated Philadelphia, 19th Dec., 1854, transmitting numerous donations to Museum acknowledged this evening. The collections were made by Count Bernardi and himself.

From Mr. S. S. Rathvon, dated Lancaster, Penn., 5th Dec., 1854, acknowledging the receipt of his notice of election, as a Correspondent.

From John C. Dalton, Jr., dated New York, 7th Nov., 1854, of same tenor.

From the Trustees of the British Museum, dated 2d Nov., 1854, acknowledging the receipt of late numbers of the Proceedings.

From the Natural History Association of Prussian Rhineland and Westphalia, dated 25th August, 1854, transmitting their publications acknowledged this evening, and requesting exchanges.

From the Royal Society of Sciences of Göttingen, dated 2d July, 1854, acknowledging the receipt of the Proceedings of the Academy.

From the Royal Academy of Sciences of Bavaria, dated Munich, —— 1854, stating that the publications of the Academy sent them are placed in the private library of the King of Bavaria, and requesting duplicate copies for that Society. Referred to the Committees on Publication and Proceedings.

From the Imperial Academy of Sciences of Vienna, dated 18th June, 10th Aug., and Nov. 3d, 1854, accompanying the donations acknowledged this evening.

From Dr. J. H. Molkenboer, dated Leyden, 12th June, 1854, accompanying the donations announced this evening.

Dr. Le Conte presented a paper for publication in the Proceedings entitled, "Descriptions of new Coleoptera collected by Thos. H. Webb, M.D., in the years 1850–1–2 while Secretary to the U. S. and Mexican Boundary Commission." Referred to Dr. Zantzinger, Dr. Henderson, and Prof. Haldeman.

Mr. Cassin presented a paper for publication, entitled, "List of the species of Pigeons of the genus Carpophagus, Swainson, in the collections of the Academy of Natural Sciences of Philadelphia, and of the U. S. Exploring Expedition, Washington, D. C., with descriptions of new and little known species." Referred to Col. McCall, Dr. Wilson, and Dr. Woodhouse.

Dr. Genth presented for publication a paper, entitled, "Herrerite identical with Smithsonite." Referred to Dr. Wetherill, Dr. Rand, and Dr. Bridges.

Dr. Wetherill presented a paper for publication, entitled "Chemical Notices." Referred to Dr. Rand, Dr. Bridges, and Dr. Genth.

Dr. Wetherill called the attention of the members to the experiments of Dr. Stenhouse upon the action of charcoal on animal substances in promoting their rapid destruction, a fact first noticed by Mr. Turnbull, of London. In the experiments of Dr. Stenhouse, small animals were covered with powdered charcoal, and the soft parts were speedily destroyed. No offensive odor was noticed, although the experiments were conducted in the laboratory. Dr. Wetherill suggested the use of this agent in the preparations of the skeletons of small animals.

Mr. Cassin stated that at the present time, and for several weeks past, the white-winged Crossbill (Loxia leucoptera) has been exceedingly abundant in the neighborhood of this city, and noticed the fact that this had been the case, notwithstanding that the weather had not been more rigorous than usual at this season. This bird has not appeared here until the present month, since the winter of 1836–7, when it and other

northern birds were very abundant. As yet, the bird alluded to has not been ascertained to be accompanied by other species, but is more abundant than during its visit in 1836–7. During an excursion in New Jersey, a few miles from Philadelphia, Mr. C. stated that he saw not only boys shooting crossbills in large numbers, but killing them with stones, which their frequenting low pine trees, and their apparent entire want of acquaintance with danger, rendered not difficult. They, in fact, manifest the utmost simplicity of habits, showing even no signs of alarm at the report of the gun, and continue quietly searching for food without regarding the death of their companions.

A collector of this city recently shot seventy-eight specimens in the course of one morning, and Mr. Drexler, lately employed by the Academy as taxidermist, shot twenty-seven specimens this day. It would appear from the unsuspicious manners of these birds that they have migrated from regions not settled by the white races of men, and their appearance here in such large numbers may be considered as demonstrative that the winter in the north either commenced unusually early, thus preventing the maturity of the buds on which they subsist, or that it has been of great severity.

December 26th.

Vice-President BRIDGES in the Chair.

The Committees on papers by Mr. Joseph Jones, of Georgia, read October 25th; by Dr. Leidy, read Dec. 5th; by Dr. Le Conte, read Dec. 12th and 19th; by Mr. Girard, read Dec. 12th; by Mr. Cassin, read Dec. 19th; by Dr. Genth, read same date; by Dr. Wetherill, read same date; and by Mr. Isaac Lea, read Feb. 7th, 1854, severally reported in favor of publication in the Proceedings.

An Abstract of Experiments upon the Physical Influences exerted by Living Organic, and Inorganic, Membranes, upon Chemical Substances passing through them by Endosmose.

By JOSEPH JONES.

The phenomenon of endosmose is coeval with that of life. All organized beings spring from organic cells. Each cell is a chemical laboratory; the materials for its nutrition, growth, and elaboration all pass through its walls by endosmose. What is true of the organic cell, is also true of every living organism, however simple or complex, because all its acts of nutrition, secretion, and growth, are carried on by organic cells. These facts show the important bearing of endosmose upon physiology and pathology, and demonstrate the absolute necessity of studying and understanding its phenomena, and developing, as far as possible, all its physical laws.

A true knowledge of these can only be gained by careful, laborious, and numerous experiments.

Experiments upon Living Animals, showing that their Membranes exert a Physical Influence capable of changing the molecular arrangement of Chemical Substances in solution, passing through them by Endosmose.

Immersed the belly and lower extremities of a large spring-frog, in a strong solution of the chloride of calcium, and allowed it to remain for an hour; then washing it carefully with water, immersed its lower extremities in a strong solution of the oxalate of ammonia. It remained in this solution for one hour,

when it was again carefully washed and placed in the solution of the chloride of calcium, where it remained for a similar length of time. Finally, it was removed from this, back to the solution of the oxalate of ammonia.

During the course of the experiment, which lasted four hours, the frog gradually became weaker and more inactive, and finally died in the solution of the oxalate of ammonia in which it was last placed. The specific gravity of the solution of the oxalate of ammonia was much less than that of the chloride of calcium, consequently the object in moving the frog from one solution to another, was to obtain as large a deposite of the oxalate of lime within its blood-vessels and tissues as possible, by promoting the actions of imbibition, endosmose, and exosmose.

As a general rule, the rapidity of the action of endosmose is proportional to the difference of the densities of the exterior and interior fluids. The effects of this action, or rather of the membranes, upon the chemical substances passing through, will be manifested by the change of physical form exhibited by the precipitate of the oxalate of lime.

Immediately after the frog had been removed from the solution of the oxalate of ammonia, an incision was made below and to the side of its sternum, into the cavity of the thorax and abdomen. The heart was found still pulsating. The blood-vessels beneath the skin, upon the surface of the stomach and intestines, in the muscular fold of the peritonœum, and between the kidneys, appeared thoroughly injected with blood, as if the animal had died of violent inflammation of all these parts.

The blood from the heart and lungs was first examined under the microscope, in which, with a magnifying power of 210 diameters, were seen innumerable minute cubical particles, floating amongst the large elliptical blood capsules. In the fibrous tissue between the epidermis and pectoralis major muscle, square plates, cubical crystals, and parallelograms were seen, together with minute particles, the largest of which appeared to be cubes.

The mesenteric fold of the peritonœum contained the same equi-lateral, equi-angular plates, and cubical crystals. In the fascia of the thigh, besides numbers of these, there appeared, also, beautiful octohedral crystals of the oxalate of lime, similar in all respects to those formed when the intestines of a raccoon, (*Procyon lotor*,) were filled with a solution of the chloride of calcium, and immersed in a solution of the oxalate of ammonia.

When the eggs of the frog were mashed, and their contents spread out on a glass slide and examined under the microscope, they contained multitudes of equi-angular plates, and cubical crystals of the oxalate of lime.

It is probable that the exterior fluids passed through the anus and cloaca into the oviducts and ovaries, and finally by endosmose into the eggs themselves.

In the fibrous tissue of the walls of the abdomen, in addition to the cubes and octohedra, and equi-lateral plates, there appeared, also, delicately formed dumb-bell and ellipsoidal crystals.

When the plantar fascia of the foot was cut through, from the incision flowed a fluid resembling the liquor sanguinis mixed with a little blood, which, under a magnifying power of 210 diameters, contained beautiful octohedral and dumb-bell crystals of the oxalate of lime.

This experiment was repeated with slight variations, as to the length of the time, and the density of the fluids, and in every instance, without any exception, the results were the same.

In one instance, the deposit formed within the blood and tissues of the frog, assumed the form of delicate dumb-bell and cruciform crystals of the oxalate of lime. Figure I. represents the appearance of these crystals and their relative size, when compared with the blood corpuscles. In another experiment the blood from the ventricle of the heart contained large and perfectly formed octohedra, with a few dumb-bell crystals, while the various tissues and muscles contained chiefly delicately formed dumb-bells and crystals, and the aqueous humor of the eye contained octohedral, and comparatively large acicular crystals.

Figure II. represents the crystals from the blood of the heart.

Figure III. those found in the tissues, and between the fibres of the muscles.

Figure IV. the acicular and octohedral crystals found in great numbers in the aqueous humor of the eye.

We see then by these microscopical examinations, that the oxalate of lime has assumed forms different in all respects from those of the precipitate thrown down, when solutions of the chloride of calcium and oxalate of ammonia are brought into immediate contact. The precipitate thus formed consists of minute irregular granules. Figure V. represents this deposit. What has changed the physical form of this deposit? It has been accomplished, without doubt, by the action of the membranes upon the chemical substances in solution passing through them.

Experiments upon the physical influence exerted by mucous membranes, removed from all vitality, upon chemical substances in solution passing through them.

Filled the intestine of a Raccoon, (Procyon lotor), with a solution of the chloride of calcium, whose specific gravity was 1031, and immersed it in a solution of the oxalate of ammonia, having a specific gravity of 1007. In the course of an hour the exterior fluids became cloudy, with a white precipitate, the oxalate of lime. At the end of two days, a copious white deposit had settled to the bottom of the jar, which, under a magnifiying power of 210 diameters, presented the appearance of innumerable acicular, rectangular, and irregular particles, often conglomerated together in great numbers, forming miniature representations of plants with their branches and leaves. Figure VI. represents their appearance.

Specific gravity of exterior fluid 1005.

The interior fluid was next examined, the intestine having been punctured and its contents carefully removed.

Specific gravity of interior fluid 1003.

This marked change of its specific gravity from 1031 to 1003, shows that a free interchange of the fluids must have taken place. The slight change in the exterior fluid, of 1007 to 1005, is readily explained, when we consider the fact, that the exterior was 12, whilst the interior was only 4 fluidounces.

Within the intestines but a small deposit had taken place, in comparison with that of the exterior fluid. Under the microscope this presented a magnificent crystalline appearance, differing wholly from that of the exterior fluids, and also from that formed when solutions of the chlorides of calcium and oxalate of ammonia are brought into immediate contact.

The appearance of this magnificent microscopical object is represented in figure VII.

Amongst the crystals there were no less than seven well defined regularly formed varieties. We recognize the octohedral and dumb-bell crystals, as the form in which the oxalate of lime almost invariably occurs in the urine, not only of man, but also of other animals, and even in that of birds.

Does not this experiment indicate that the peculiar forms of the oxalate of lime, occurring in urine, may be the result of the physical action of the basement membrane of the tubuli uriniferi and its secretory cells?

The tissues of the intestine were next examined.

The cellular tissue was not equally injected; in some places there was scarcely any, while in others there was a very abundant deposit.

In all places the mucous membrane appeared free from any deposit of the oxalate of lime. It was found difficult, however, to decide this question by the microscope, on account of the difficulty of separating the fibrous tissue completely in which occurred a copious crystalline deposit.

This is not the only instance; out of numerous examples, we will select only two.

When the bladder of a raccoon (Procyon lotor) was filled with a solution of the bichloride of mercury, and immersed in a solution of the iodide of potassium, a brilliant red crystalline deposit of the biniodide of mercury took place upon the exterior, whilst upon the interior a light yellow mass of lozenge-shaped crystals of the protiodide of mercury was precipitated. In this case also the mucous membrane appeared free from any deposit.

when it was again carefully washed and placed in the solution of the chloride of calcium, where it remained for a similar length of time. Finally, it was removed from this, back to the solution of the oxalate of ammonia.

During the course of the experiment, which lasted four hours, the frog gradually became weaker and more inactive, and finally died in the solution of the oxalate of ammonia in which it was last placed. The specific gravity of the solution of the oxalate of ammonia was much less than that of the chloride of calcium, consequently the object in moving the frog from one solution to another, was to obtain as large a deposite of the oxalate of lime within its blood-vessels and tissues as possible, by promoting the actions of imbibition, endosmose, and exosmose.

As a general rule, the rapidity of the action of endosmose is proportional to the difference of the densities of the exterior and interior fluids. The effects of this action, or rather of the membranes, upon the chemical substances passing through, will be manifested by the change of physical form exhibited by the precipitate of the oxalate of lime.

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Figure II. represents the crystals from the blood of the heart.

Figure III. those found in the tissues, and between the fibres of the muscles.

action of the membranes. To determine this point a series of careful experiments were instituted with the following substances; albumen, fibrin, yolk of hen's egg, warm blood, cold blood, putrescent blood, warm serum, cold serum, putrescent serum, and urine. In no case did the presence of these substances produce a crystalline deposit of the oxalate of lime. Each experiment was performed in several different ways, and under different circumstances; sometimes the densities of the solutions of the chloride of calcium and oxalate of ammonia were varied, at others the temperature and conditions of the foreign body. But one result attended all these experiments—no crystalline deposit. In many instances we have mingled the interior and exterior fluids, in both of which crystals had been produced by the action of the membrane, and in every case the precipitate of the oxalate of lime thrown down consisted of irregular granules without any crystalline form whatever. Does not this prove conclusively that the simple presence of the different membranes did not cause the change of the physical form of the precipitate?

The next question which presented itself was, whether dry membranes exert a physical influence upon substances passing in solution through them, capable of changing their physical forms? To determine this point we performed several experiments with dry membranes, with solutions of the chloride of calcium and oxalate of ammonia, varying the relative positions and densities of the fluids in each experiment. In no instance was a regular crystalline deposit obtained. In only one experiments, two or three octohedral crystal occurred in the midst of millions of irregular particles.

All our experiments, thus far, prove that dry membranes exert little or no physical influence upon chemical substances in solution passing through them.

Our next subject was to ascertain the influence of inorganic septa, during the endosmotic action. In our experiments we used thin vessels of baked clay. These were filled with a solution of the chloride of calcium and immersed in a glass jar containing a solution of the oxalate of ammonia. The relative positions and densities of these fluids were also changed. In no instance did we obtain a regular crystalline deposit. So far then as our experiments go, we are able to assert, that inorganic septa do not exert a physical influence upon chemical substances passing through them, capable of changing the arrangement of their molecules.

Experiments upon the physical influence exerted upon chemical substances in solution, as they pass through the cell walls of vegetables.

Immersed the cut end of a stalk of Indian corn in a solution of the chloride of calcium, and allowed it to remain for 18 hours, at the end of which time it was removed and placed in a solution of the oxalate of ammonia, in which it remained for a similar length of time. When thin slices of the corn-stalk were examined under a magnifying power of 210 diameters, a crystalline deposit of the oxalate of lime, was found to have taken place within the hexagonal cells of the vegetable, which presented the appearance represented in Figure IX. This differs widely from the deposit formed when solutions of the oxalate of ammonia and chloride of calcium are brought into immediate contact. The precipitate thus formed consisted of irregular granules.

The crystals deposited within the cells of the corn, differed widely also from those formed when the intestines of a raccoon or a sheep were filled with solutions of the oxalate of ammonia, and immersed in solutions of the chloride of calcium.

Immersed sections of different lengths of the stem of a young and verdant benne plant, in a solution of the acetate of lead, and then transferred them to a strong solution of the proto-sulphate of iron. When thin sections were examined under the microscope, beautiful square and lozenge-shaped plates had crystallized in all the hexagonal cells.

When the broad thick leaf of an endogenous plant was placed alternately in solutions of the same chemical substances, a crystalline deposit took place within its cells, which differed in form from that within the cells of the benne plant. Different vegetables were immersed in different chemical solutions,

Fig. I

Fig. II.

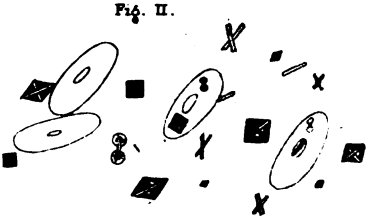

Fig. III.

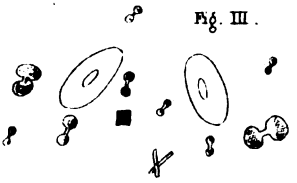

Fig. VI.

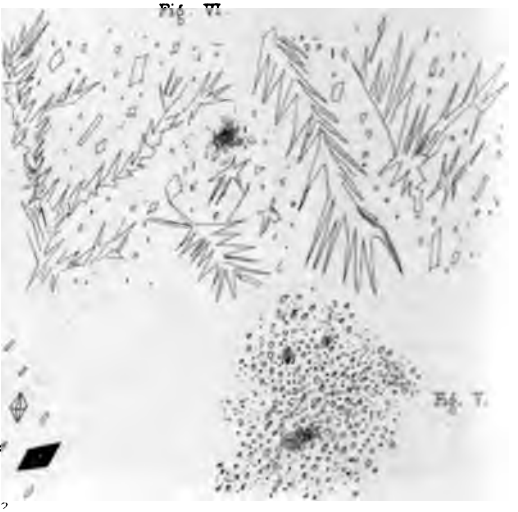

Fig. V.

Fig. VIII

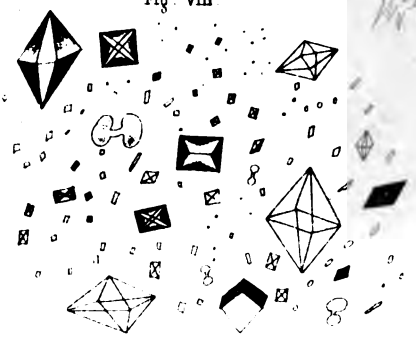

Fig. IV.

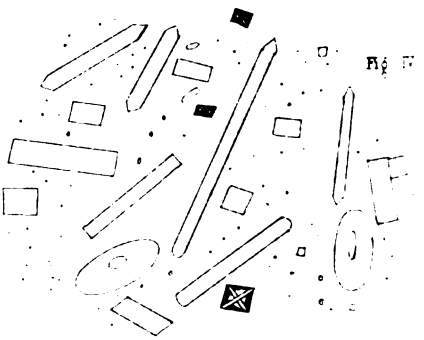

Fig. VII

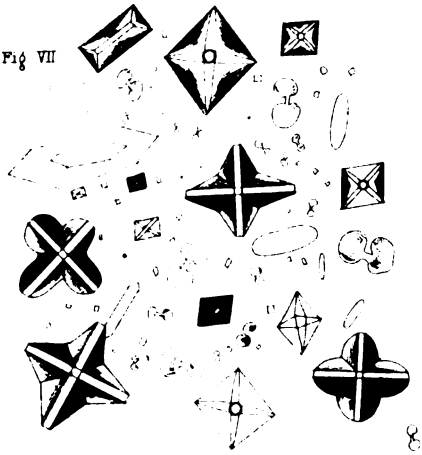

Fig. X.

Fig. XI.

Fig. IX.

which when mingled produced a deposit of irregular granules, and in every instance a regularly crystalline deposit took place within their cells.

It is unnecessary to do more than recapitulate the following results.

1. Cell-walls, like animal membranes, exert a physical influence upon the chemical substances held in solution passing through them. This physical influence is capable of altering the arrangement of the molecules of the precipitate formed within the cells, so that the precipitate which under ordinary circumstances consists of irregular granules, under the influence of the endosmodic action assumes a regular crystalline form.

2. The cells of different vegetables, like different animal membranes, change in different manners the arrangement of the molecules of the same substance.

It may yet be demonstrated, by experiment, that cells in the same plant, having different offices, elaborating different products, may exert a different physical influence upon the same chemical substance. Or, in other words, the crystalline deposit of the same substance, will vary in physical properties with different cells.

In conclusion we would state that we are still investigating this subject, and hope to be able to substantiate, by numerous experiments, performed under every possible circumstance, all the laws and facts asserted in this brief abstract of experiments.

Remarks on the question of the identity of Bootherium cavifrons with Ovibos moschatus or O. maximus..

By Joseph Leidy, M.D.

In the Zoology of the voyage of H. M. S. Herald, the author, Sir John Richardson, in speaking of an extinct species of ox, characterized by me under the name of *Bootherium cavifrons* starts a question, of which I think there is not the least necessity. On page 120 of his excellent work, he remarks, "Dr. Leidy includes no fewer than twelve crania, all more or less mutilated, and dug up in the valley of the Mississippi, in his species named *Bootherium cavifrons*, to which he refers Dr. Dekay's specimen; and a comparison of his fig. 2, pl. iii. with the same view of the cranium of the musk-ox in pl. iii. of the 'Zoology of the Herald,' leaves no reasonable doubt of the fossil species being quite distinct from the recent one. The accessory trochleæ of the occipital condyles are fully developed in the fossil skull, and many other peculiarities of *Ovibos* may be discerned in the figures, so that *Bootherium* and *Ovibos* are evidently very closely allied. A question now arises whether the *dentata* above referred to as the foundation of the proposed palæozoic species *Ovibos maximus* may not be a relic of Dr. Leidy's *cavifrons*, and this might, without much risk of mistake, be decided in the affirmative, were it certain that the Siberian crania mentioned in the 'Ossemens Fossiles' were identical in species with those imbedded in the drifts of the Mississippi; but as yet the evidence for such an extension of the ancient range of *cavifrons* is wanting. The size of Dr. Leidy's specimen of *cavifrons* does not exceed that of the skull of an aged musk bull, and the *dentata* of *maximus* is of corresponding dimensions. If the discovery of a dentata of the musk ox type, and of suitable size, in the valley of the Mississippi, should hereafter fully establish the identity of *cavifrons* with *maximus*, it may be necessary to ascertain which of the two appellations was first made public."

That *Bootherium* is closely allied to *Ovibos*, as declared in my "Memoir on the Extinct Species of American Ox," page 12, there is no doubt; but that the two genera are distinct I think is proved by the former possessing an important character, which does not exist in the latter nor in any other genus of Bovidæ. The character to which I allude is the large lachrymal fossæ or larmiers situated in front of the orbits, as in the Cervidæ, and which are represented in fig. 1, pls. iv., v, of the memoir above referred to, in both species of *Bootherium*.

"That the Siberian crania mentioned in the 'Ossemens Fossiles'" are not 'identical in species with those embedded in the drifts of the Mississippi," I

think any one will grant who will take the trouble to compare the figures of the "Siberian crania," in the works of Pallas,* Ozeretskovsky,† or Cuvier,‡ with my figures of *Bootherium cavifrons*. The former are indistinguishable from the figures given of the crania of the recent *Ovibos moschatus*, while the latter has no deep fissure separating the bases of the horn cores, but these are confluent and form a huge process covering the entire length and breadth of the frontal bone.

Sir John Richardson has himself, in page 22 of his work, considered the "Siberian crania" as belonging to the *Ovibos moschatus;* and in the above extract has stated there is "no reasonable doubt of the fossil species," (*Bootherium cavifrons*) "being quite distinct from the recent one" (*Ovibos moschatus*). Consequently, he has decided that *Bootherium* is a different animal from the species to which the "Siberian crania" belonged. Therefore, it appears to me, when Sir J. R. subsequently says, "A question now arises whether the *dentata* above referred to as the foundation of the supposed palæozoic species *Ovibos maximus*, may not be a relic of Dr. Leidy's *cavifrons*, and this might, without much risk of mistake, be decided in the affirmative, were it certain that the Siberian crania mentioned in the 'Ossemens Fossiles' were identical in species with those embedded in the drifts of the Mississippi, but as yet the evidence of such an extension of the ancient range of *cavifrons* is wanting," the question had already been decided that "the Siberian crania" were not "identical in species with those embedded in the drifts of the Mississippi."

Sir J. R. then says, "The size of Dr. Leidy's specimen of *cavifrons* does not exceed that of the skull of an aged musk-bull, and the *dentata* of *maximus* is of corresponding dimensions." If this be the case I would ask, as the "*dentata of maximus*" was found in the country of the "musk-bull," and is of the same size as the corresponding bone in that animal, what evidence is there that it does not belong to it?

Under these circumstances "the discovery of a *dentata* of the musk-ox type, and of suitable size, in the valley of the Mississippi," would by no means "establish the identity of *cavifrons* with *maximus*," but would rather tend to show the greater ancient range of the *Ovibos moschatus*.

In regard to the time at which the appellations *cavifrons* and *maximus* were made public I deem it of trifling importance to science, but I may take the present opportunity of stating that the name *Bootherium cavifrons* was proposed in the number of the Proceedings of this Academy for May and June 1852, which was distributed the following month, therefore three months previous to the appearance of the "first part of the Herald's Zoology."

In conclusion I may add a list of what appear to be the species of American ox, recent and extinct.

1. BISON AMERICANUS, (recent and fossil). The fossil certainly not the *Bison priscus*? Richardson.
2. BISON LATIFRONS, *Leidy*. For synonyma refer to page 8 of Mem. on Ext. Sp. of Am. Ox., and add *Sus Americanus*, Harlan; *Harlanus Americanus*, Owen.§
3. BISON PRISCUS? *Richardson*.
4. BISON CRASSICORNIS, *Richardson*.
5. BISON ANTIQUUS? *Leidy*. I think not the same as the *Bison crassicornis*, Richardson, but probably it may be *Bison latifrons*.
6. BOOTHERIUM CAVIFRONS, *Leidy*. Syn. page 12 of Mem. on Ext. Sp. &c.
7. BOOTHERIUM BOMBIFRONS, *Leidy*. Syn. page 17 of Mem. on Ext. Sp., &c., and add *Bison bombifrons*, Richardson, Zool. Her. p. 41.
8. OVIBOS MOSCHATUS. (Recent and fossil.) *Bos Pallasii*, De Kay.
9. ? OVIBOS MAXIMUS, *Richardson*.

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* Nov. Com. Petrop. xvii., tab. xvii, figs. 1—3.
† Mém de l' Acad. de St. Petersb., iii., pl. vi.
‡ Ossem. Foss. ed. 4, vi., pl. clxxii., figs. 9, 10, clxxi. figs. 6, 7.
§ See Proc. Acad. Nat. Sci. vii. 89.

Descriptions of the species of TROX *and* OMORGUS *inhabiting the United States.*

By JOHN L. LECONTE, M.D.

TROX Fabr.

A. *Thorax inæqualis præcipue bicostatus.*

1. T. Sonoræ, oblongus niger, thorace latitudine fere triplo breviore, irregulariter grosse punctato, inæquali, disco elevato bicostato, lateribus late rotundatis, elytris costis quatuor suturaque elevatis haud interruptis, setis sordidis brevissimis tesselatis, interstitiis muricato-punctatis cicatricosis, tuberculis parvis uniseriatis notatis. Long. ·38.

One specimen, Tucson, Sonora. This species is very similar to the next, but the sides of the thorax are less rounded, being almost straight near the base; the furrows of the elytra are distinctly tuberculate, and the general form of the body is narrower. Nevertheless, a larger series of specimens may prove these differences to be of no value.

2. T. alternans, oblongus, niger, thorace irregulariter grosse punctato, latitudine fere triplo breviore, lateribus modice rotundatis, elytris costis quatuor suturaque elevatis haud interruptis, setis sordidis brevissimis tessellatis, interstitiis muricato-punctatis, transversim cicatricosis, tribus internis simplicibus, quarto costula intermedia notato. Long. ·37.

Kansas Territory and New Mexico. The head is scarcely tuberculate, densely punctured with the clypeus rounded, not margined; thorax two and a half times wider than long, moderately rounded on the sides, ciliate with yellow bristles, irregularly and coarsely punctured, unequal, with the middle of the disc strongly elevated and bicostate, the intermediate furrow being divided by a slight transverse elevation about the middle. Elytra oval, truncate at base, finely serrate on the sides, with four elevated uninterrupted costæ, which are tessellated with short yellowish bristles, and alternate shining spots; suture elevated; the three inner spaces are broadly concave, with irregular transverse elevations, and sparingly marked with small muricate punctures, arranged nearly in four series, but not so closely placed as to render the arrangement obvious; in some directions the transverse elevations seem to indicate a row of tubercles, but this is also very indistinct; the fourth space is marked with an indistinct interrupted costa, forming a row of tubercles; at the tip of the elytra all these irregularities fade away, and the ordinary arrangement of striæ may be traced. The capillary striæ seen in many species are here entirely wanting, except in the subsutural space where they may be faintly discovered. The anterior femora, as in most species, are strongly dilated and crenulate inferiorly; the anterior tibiæ of one specimen from Kansas are without teeth; in the New Mexican specimen, besides the ordinary square terminal tooth, there are two small ones at the middle, and some fine serrations towards the base.

A specimen from Kansas, of smaller size (.35) has the costæ of the elytra less elevated and the interstices less corrugated, so as to present, besides the very small muricated punctures, two rows of large subquadrate punctures, nearly as in T. porcatus, from which, however, it is abundantly distinguished by the differences in the form and sculpture of the thorax, and by the absence of the capillary striæ of the elytra.

3. T. sordidus, niger, thorace flavo-ciliato, brevissime setoso, inæquali irregulariter grosse punctato, lateribus late rotundatis, medio modice elevato bicostato, elytris costis quatuor interruptis, suturaque elevatis brevissime setosis, postice indistinctis, interstitiis inequalibus bistriatis, tuberculisque parvis uniseriatis. Long. ·3.

Georgia, New York, Kansas. Smaller than the preceding, with the sides of the thorax less rounded and the disc less elevated. The second and third costæ of the elytra are more interrupted than the first and fourth, and all are indistinct posteriorly; when the inequalities of the elytra are less marked, the

capillary striæ appear strongly punctured with an intermediate row of small distant tubercles. The anterior tibiæ are furnished with a broad bidentate terminal process, and one well-marked tooth at the middle; they are finely serrate towards the base. The anterior femora are very strongly dilated and crenate on the inferior margin. The head is somewhat more unequal than in T. alternans.

4. T. porcatus, niger, sordidus, thorace longius flavo-ciliato, sordide breviter setoso, latitudine duplo breviore, lateribus antice rotundatis, inequaliter punctato, medio bicostato, sutura costisque interruptis elevatis flavo-setosis, costis alternis minoribus fere indistinctis, interstitiis punctis magnis quadratis seriatis stria capillari coniunctis. Long. ·4—·46.

Say, Journ. Acad. Nat. Sc. 5, 193.

Middle and Southern States. The sides of the thorax are straight for three fourths of their length, and are then rounded to the apex; the punctures of the elytra are connected by striæ, and the inequalities diminish towards the tip. The anterior tibiæ are serrate towards the base, with one sharp tooth at the apex: the femora are very much dilated, and hardly crenulate on the inferior margin. In the form of the thorax this species is allied to T. capillaris, but in that species the capillary striæ of the elytra are much stronger, the costæ are less distinct, forming merely rows of distant penicellated elevations, and the rows of punctures are not very obvious.

5. T. tuberculatus, oblongus, niger, thorace latitudine plus duplo breviore, lateribus late rotundatis, inæquali, partibus elevatis breviter fulvo-setosis, dorso elevato, bicostato, elytris tuberculis valde elevatis oblongis brevissime setosis, quadriseriatim positis, interstitiis parce quadriseriatim muricato-punctatis, suturaque tuberculis parvis uniseriatim notatis. Long. ·3—·37.

Herbst, Käfer, 3, 24; tab. 21, fig. 6: Oliv. Ins. 4, p. 9; tab. 2, fig. 8.

Scarabæus tuberculatus, De Geer, 4, 317; tab. 19, fig. 2.

Trox serrulatus, Beauv. Ins. 176, tab. 46, fig. 9.

Trox canaliculatus, Say, Long's Exped. St. Peter's 2, 278.

Middle and Southern States, not rare. Besides the apical emarginate process, the anterior tibiæ have only one prominent tooth at the middle; above this are some fine crenulations. This species is not much like T. sabulosus of Europe, with which Olivier compares it, but is the only one known to me that will agree with the descriptions or figures.

6. T. erinaceus, minus elongatus, subovatus, niger, thorace latitudine fere triplo breviore, lateribus late rotundatis, setis nigris penicellato, dorso bicostato, elytris striis distinctis, interstitiis parce muricato-punctatis interstitiis 3, 5, 7, 9 tuberculis valde elevatis, oblongis, acutis nigro-penicellatis, serie suturali paulo minore ornatis. Long. ·25.

South Carolina, Mr. Zimmermann. The intervals between the series of large elevations are marked with a scarcely distinct series of tubercles, hardly larger than the scattered elevated punctures. The denticulations of the anterior tibiæ are not distinct, but one near the middle is a little more prominent.

7. T. terrestris, breviusculus, ovatus, niger (præcipue sordidus), thorace latitudine duplo breviore, lateribus vix late rotundatis, subreticulatim inæquali, elytris punctis quadratis seriatis, interstitiis alternis elevatis subinterruptis, brevissime sordide setosis, alternis (alteris) parce muricato-punctatis. Long. ·21—·24.

Say, Journ. Acad. Nat. Sc. 5, 192.

Middle and Southern States, abundant. The inequalities of the thorax are less developed than in those above described, and are connected together so as to give a reticulated appearance; five of the cells are adjacent to the base, and three fill up the apex. The anterior tibiæ, besides the universally found square apical prominence, have only one moderate tooth below the middle.

8. T. capillaris, longiusculus, ovatus, sordide niger, thorace parce setoso, latitudine vix sesquibreviore, lateribus fere rectis, inæquali, dorso bicos-

tato, elytris striis tenuibus elevatis notatis, et punctis parcis notatis, interstitiis tuberculis vix elevatis breviter nigro-fasciculatis ornatis, seriebus alternis maioribus; serie suturali autem secundæ æquali. Long. ·36—·40.

Say, Journ. Acad., Nat. Sc.. 3, 238: Harris, Trans. Hartford Soc. Nat. Hist. 77.

Middle, Southern and Western States: the anterior tibiæ have a prominent tooth below the middle and a smaller one above the middle. When the elytra are very carefully cleaned the elevated lines towards the suture are seen to be double, while beyond the third series of the larger bunches of bristles, they vanish entirely, and rows of punctures alone are seen. The inequalities of the thorax consist of the two entire dorsal costæ and a smaller one each side, extending from the base beyond the middle.

B. *Thorax haud inæqualis.*

9. T. variolatus, elongatus, niger, thorace latitudine duplo breviore, lateribus antice rotundatis, confertim punctato breviter setoso, late canaliculato et marginato, elytris striis tenuibus elevatis punctatis, interstitiis fulvo-penicellatis, alternatim paulo elevatis, seriebus alternis maioribus. Long. ·25.

Melsheimer, Proc. Acad. 2, 137.

Middle States. The sutural series of bunches of bristles is larger than the one adjacent. The anterior tibiæ have two or three very small teeth on the outer margin. Closely resembles the next, but readily distinguished by the elevation of the alternate intervals, and by the larger bunches of hair on the elevated spaces.

10. T. æqualis, elongatus, niger, thorace latitudine duplo breviore, lateribus antice rotundatis late deplanatis, confertim punctato, breviter fulvo setoso, dorso subcanaliculato, elytris striis tenuibus elevatis punctatis, interstitiis æqualiter uniseriatim fulvo penicellatis. Long. ·25.

Say, new species of insects of Louisiana, (1832).

Middle and Southern States. The anterior tibiæ have one small tooth near the apical prominence, which is bidentate.

11. T. fascifer, elongatus, niger, thorace latitudine duplo breviore, lateribus late rotundatis, late deplanatis, confertim subtilius punctato, breviter fulvo setoso, dorso vix canaliculato, elytris striis tenuibus elevatis subtilius punctatis, interstitiis æqualiter uniseriatim fulvo penicellatis. Long. ·26.

One specimen, San Francisco. Precisely similar in form and appearance to the preceding, but differs in having the striæ of the elytra finely instead of coarsely punctured: the outer margin of the anterior tibiæ above the terminal bidentate prominence is marked with three small but distinct teeth.

12. T. laticollis, minus elongatus, niger, nitidus, thorace latitudine plus duplo breviore, lateribus magis rotundatis, late explanatis, angulis posticis valde obtusis, parce setoso, grossius punctato, late canaliculato, elytris striis subtilius punctatis, interstitiis planis fasciculis minutis nigris uniseriatim ornatis. Long. ·24.

One specimen, New York. Broader than the two preceding, with the sides of the thorax considerably rounded, so that the posterior angles become obtuse: the fascicles of the elytra are composed of only three or four short black bristles, which arise from a somewhat muricate puncture. The anterior tibiæ have three small equidistant teeth, exclusive of the terminal prominence.

13. T. striatus, oblongus, convexus, nigro-piceus, nitidus, thorace latitudine plus duplo breviore, lateribus angustius marginatis late rotundatis, sat dense punctato subcanaliculato, elytris glabris, striis profunde crenatis impressis, interstitiis subconvexis, parce punctulatis. Long. ·25.

Melsheimer, Proc. Acad. 2, 137.

Pennsylvania, Rev. D. Zeigler; very rare. Besides the strongly bidentate apical tooth, the anterior tibiæ are armed with three small teeth: the posterior angles of the teeth are nearly rectangular.

Fig. I

Fig. II.

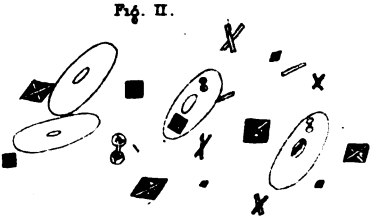

Fig. III.

Fig. VI

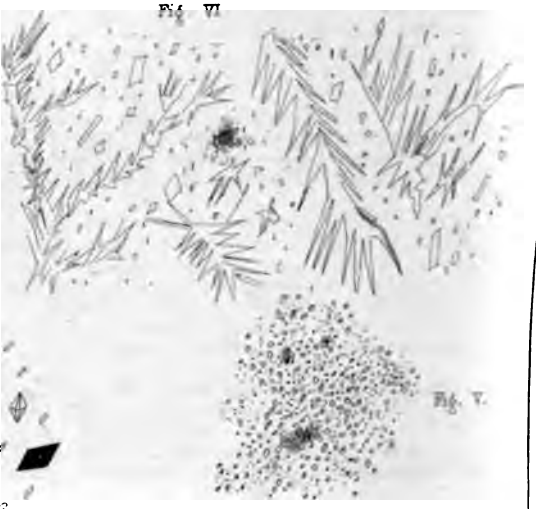

Fig. V.

Fig. VIII

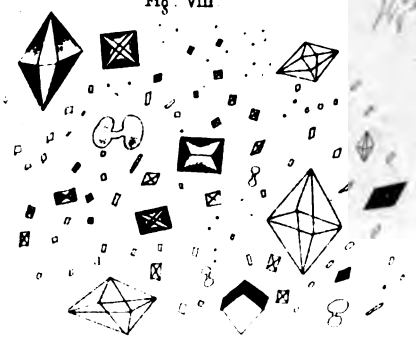

Fig. IV

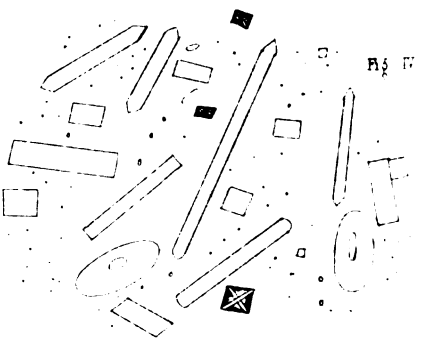

Fig VII

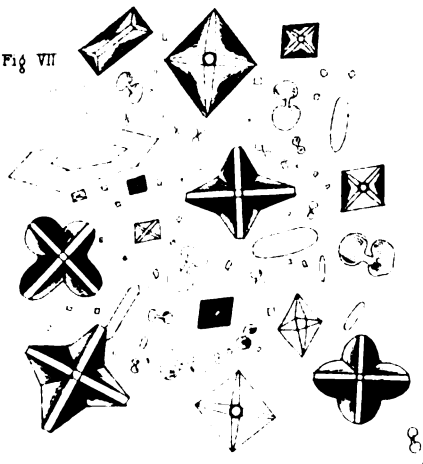

Fig. X.

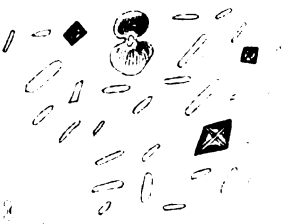

Fig. XI.

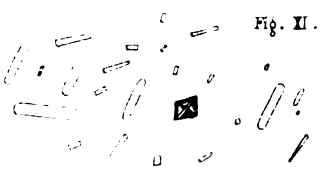

Fig. IX.

which when mingled produced a deposit of irregular granules, and in every instance a regularly crystalline deposit took place within their cells.

It is unnecessary to do more than recapitulate the following results.

1. Cell-walls, like animal membranes, exert a physical influence upon the chemical substances held in solution passing through them. This physical influence is capable of altering the arrangement of the molecules of the precipitate formed within the cells, so that the precipitate which under ordinary circumstances consists of irregular granules, under the influence of the endosmodic action assumes a regular crystalline form.

2. The cells of different vegetables, like different animal membranes, change in different manners the arrangement of the molecules of the same substance.

It may yet be demonstrated, by experiment, that cells in the same plant, having different offices, elaborating different products, may exert a different physical influence upon the same chemical substance. Or, in other words, the crystalline deposit of the same substance, will vary in physical properties with different cells.

In conclusion we would state that we are still investigating this subject, and hope to be able to substantiate, by numerous experiments, performed under every possible circumstance, all the laws and facts asserted in this brief abstract of experiments.

Remarks on the question of the identity of Bootherium cavifrons with Ovibos moschatus or O. maximus..

By Joseph Leidy, M.D.

In the Zoology of the voyage of H. M. S. Herald, the author, Sir John Richardson, in speaking of an extinct species of ox, characterized by me under the name of *Bootherium cavifrons* starts a question, of which I think there is not the least necessity. On page 120 of his excellent work, he remarks, "Dr. Leidy includes no fewer than twelve crania, all more or less mutilated, and dug up in the valley of the Mississippi, in his species named *Bootherium cavifrons*, to which he refers Dr. Dekay's specimen; and a comparison of his fig. 2, pl. iii. with the same view of the cranium of the musk-ox in pl. iii. of the 'Zoology of the Herald,' leaves no reasonable doubt of the fossil species being quite distinct from the recent one. The accessory trochleæ of the occipital condyles are fully developed in the fossil skull, and many other peculiarities of *Ovibos* may be discerned in the figures, so that *Bootherium* and *Ovibos* are evidently very closely allied. A question now arises whether the *dentata* above referred to as the foundation of the proposed palæozoic species *Ovibos maximus* may not be a relic of Dr. Leidy's *cavifrons*, and this might, without much risk of mistake, be decided in the affirmative, were it certain that the Siberian crania mentioned in the 'Ossemens Fossiles' were identical in species with those imbedded in the drifts of the Mississippi; but as yet the evidence for such an extension of the ancient range of *cavifrons* is wanting. The size of Dr. Leidy's specimen of *cavifrons* does not exceed that of the skull of an aged musk bull, and the *dentata* of *maximus* is of corresponding dimensions. If the discovery of a dentata of the musk ox type, and of suitable size, in the valley of the Mississippi, should hereafter fully establish the identity of *cavifrons* with *maximus*, it may be necessary to ascertain which of the two appellations was first made public."

That *Bootherium* is closely allied to *Ovibos*, as declared in my "Memoir on the Extinct Species of American Ox," page 12, there is no doubt; but that the two genera are distinct I think is proved by the former possessing an important character, which does not exist in the latter nor in any other genus of Bovidæ. The character to which I allude is the large lachrymal fossæ or larmiers situated in front of the orbits, as in the Cervidæ, and which are represented in fig. 1, pls. iv., v, of the memoir above referred to, in both species of *Bootherium*.

"That the Siberian crania mentioned in the 'Ossemens Fossiles'" are not 'identical in species with those embedded in the drifts of the Mississippi," I

think any one will grant who will take the trouble to compare the figures of the "Siberian crania," in the works of Pallas,* Ozeretskovsky,† or Cuvier,‡ with my figures of *Bootherium cavifrons*. The former are indistinguishable from the figures given of the crania of the recent *Ovibos moschatus*, while the latter has no deep fissure separating the bases of the horn cores, but these are confluent and form a huge process covering the entire length and breadth of the frontal bone.

Sir John Richardson has himself, in page 22 of his work, considered the "Siberian crania" as belonging to the *Ovibos moschatus;* and in the above extract has stated there is "no reasonable doubt of the fossil species," (*Bootherium cavifrons*) "being quite distinct from the recent one" (*Ovibos moschatus*). Consequently, he has decided that *Bootherium* is a different animal from the species to which the "Siberian crania" belonged. Therefore, it appears to me, when Sir J. R. subsequently says, "A question now arises whether the *dentata* above referred to as the foundation of the supposed palæozoic species *Ovibos maximus*, may not be a relic of Dr. Leidy's *cavifrons*, and this might, without much risk of mistake, be decided in the affirmative, were it certain that the Siberian crania mentioned in the 'Ossemens Fossiles' were identical in species with those embedded in the drifts of the Mississippi, but as yet the evidence of such an extension of the ancient range of *cavifrons* is wanting," the question had already been decided that "the Siberian crania" were not "identical in species with those embedded in the drifts of the Mississippi."

Sir J. R. then says, "The size of Dr. Leidy's specimen of *cavifrons* does not exceed that of the skull of an aged musk-bull, and the *dentata* of *maximus* is of corresponding dimensions." If this be the case I would ask, as the "*dentata of maximus*" was found in the country of the "musk-bull," and is of the same size as the corresponding bone in that animal, what evidence is there that it does not belong to it?

Under these circumstances "the discovery of a *dentata* of the musk-ox type, and of suitable size, in the valley of the Mississippi," would by no means "establish the identity of *cavifrons* with *maximus*," but would rather tend to show the greater ancient range of the *Ovibos moschatus*.

In regard to the time at which the appellations *cavifrons* and *maximus* were made public I deem it of trifling importance to science, but I may take the present opportunity of stating that the name *Bootherium cavifrons* was proposed in the number of the Proceedings of this Academy for May and June 1852, which was distributed the following month, therefore three months previous to the appearance of the "first part of the Herald's Zoology."

In conclusion I may add a list of what appear to be the species of American ox, recent and extinct.

1. BISON AMERICANUS, (recent and fossil). The fossil certainly not the *Bison priscus*? Richardson.

2. BISON LATIFRONS, *Leidy*. For synonyma refer to page 8 of Mem. on Ext. Sp. of Am. Ox., and add *Sus Americanus*, Harlan; *Harlanus Americanus*, Owen.§

3. BISON PRISCUS? *Richardson*.

4. BISON CRASSICORNIS, *Richardson*.

5. BISON ANTIQUUS? *Leidy*. I think not the same as the *Bison crassicornis*, Richardson, but probably it may be *Bison latifrons*.

6. BOOTHERIUM CAVIFRONS, *Leidy*. Syn. page 12 of Mem. on Ext. Sp. &c.

7. BOOTHERIUM BOMBIFRONS, *Leidy*. Syn. page 17 of Mem. on Ext. Sp., &c., and add *Bison bombifrons*, Richardson, Zool. Her. p. 41.

8. OVIBOS MOSCHATUS. (Recent and fossil.) *Bos Pallasii*, De Kay.

9. ? OVIBOS MAXIMUS, *Richardson*.

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* Nov. Com. Petrop. xvii., tab. xvii, figs. 1—3.

† Mém de l' Acad. de St. Petersb., iii., pl. vi.

‡ Ossem. Foss. ed. 4, vi., pl. clxxii., figs. 9, 10, clxxi. figs. 6, 7.

§ See Proc. Acad. Nat. Sci. vii. 89.

Descriptions of the species of TROX *and* ONORGUS *inhabiting the United States.*

By JOHN L. LECONTE, M. D.

TROX Fabr.

A. *Thorax inæqualis præcipue bicostatus.*

1. T. Sonoræ, oblongus niger, thorace latitudine fere triplo breviore, irregulariter grosse punctato, inæquali, disco elevato bicostato, lateribus late rotundatis, elytris costis quatuor suturaque elevatis haud interruptis, setis sordidis brevissimis tesselatis, interstitiis muricato-punctatis cicatricosis, tuberculis parvis uniseriatis notatis. Long. ·38.

One specimen, Tucson, Sonora. This species is very similar to the next, but the sides of the thorax are less rounded, being almost straight near the base; the furrows of the elytra are distinctly tuberculate, and the general form of the body is narrower. Nevertheless, a larger series of specimens may prove these differences to be of no value.

2. T. alternans, oblongus, niger, thorace irregulariter grosse punctato, latitudine fere triplo breviore, lateribus modice rotundatis, elytris costis quatuor suturaque elevatis haud interruptis, setis sordidis brevissimis tessellatis, interstitiis muricato-punctatis, transversim cicatricosis, tribus internis simplicibus, quarto costula intermedia notato. Long. ·37.

Kansas Territory and New Mexico. The head is scarcely tuberculate, densely punctured with the clypeus rounded, not margined; thorax two and a half times wider than long, moderately rounded on the sides, ciliate with yellow bristles, irregularly and coarsely punctured, unequal, with the middle of the disc strongly elevated and bicostate, the intermediate furrow being divided by a slight transverse elevation about the middle. Elytra oval, truncate at base, finely serrate on the sides, with four elevated uninterrupted costæ, which are tessellated with short yellowish bristles, and alternate shining spots; suture elevated; the three inner spaces are broadly concave, with irregular transverse elevations, and sparingly marked with small muricate punctures, arranged nearly in four series, but not so closely placed as to render the arrangement obvious; in some directions the transverse elevations seem to indicate a row of tubercles, but this is also very indistinct; the fourth space is marked with an indistinct interrupted costa, forming a row of tubercles; at the tip of the elytra all these irregularities fade away, and the ordinary arrangement of striæ may be traced. The capillary striæ seen in many species are here entirely wanting, except in the subsutural space where they may be faintly discovered. The anterior femora, as in most species, are strongly dilated and crenulate inferiorly; the anterior tibiæ of one specimen from Kansas are without teeth; in the New Mexican specimen, besides the ordinary square terminal tooth, there are two small ones at the middle, and some fine serrations towards the base.

A specimen from Kansas, of smaller size (.33) has the costæ of the elytra less elevated and the interstices less corrugated, so as to present, besides the very small muricated punctures, two rows of large subquadrate punctures, nearly as in T. porcatus, from which, however, it is abundantly distinguished by the differences in the form and sculpture of the thorax, and by the absence of the capillary striæ of the elytra.

3. T. sordidus, niger, thorace flavo-ciliato, brevissime setoso, inæquali irregulariter grosse punctato, lateribus late rotundatis, medio modice elevato bicostato, elytris costis quatuor interruptis, suturaque elevatis brevissime setosis, postice indistinctis, interstitiis inequalibus bistriatis, tuberculisque parvis uniseriatis. Long. ·3.

Georgia, New York, Kansas. Smaller than the preceding, with the sides of the thorax less rounded and the disc less elevated. The second and third costæ of the elytra are more interrupted than the first and fourth, and all are indistinct posteriorly; when the inequalities of the elytra are less marked, the

capillary striæ appear strongly punctured with an intermediate row of small distant tubercles. The anterior tibiæ are furnished with a broad bidentate terminal process, and one well-marked tooth at the middle; they are finely serrate towards the base. The anterior femora are very strongly dilated and crenate on the inferior margin. The head is somewhat more unequal than in T. alternans.

4. T. porcatus, niger, sordidus, thorace longius flavo-ciliato, sordide breviter setoso, latitudine duplo breviore, lateribus antice rotundatis, inæqualiter punctato, medio bicostato, sutura costisque interruptis elevatis flavo-setosis, costis alternis minoribus fere indistinctis, interstitiis punctis magnis quadratis seriatis stria capillari coniunctis. Long. ·4—·46.

Say, Journ. Acad. Nat. Sc. 5, 193.

Middle and Southern States. The sides of the thorax are straight for three fourths of their length, and are then rounded to the apex; the punctures of the elytra are connected by striæ, and the inequalities diminish towards the tip. The anterior tibiæ are serrate towards the base, with one sharp tooth at the apex: the femora are very much dilated, and hardly crenulate on the inferior margin. In the form of the thorax this species is allied to T. capillaris, but in that species the capillary striæ of the elytra are much stronger, the costæ are less distinct, forming merely rows of distant penicellated elevations, and the rows of punctures are not very obvious.

5. T. tuberculatus, oblongus, niger, thorace latitudine plus duplo breviore, lateribus late rotundatis, inæquali, partibus elevatis breviter fulvo-setosis, dorso elevato, bicostato, elytris tuberculis valde elevatis oblongis brevissime setosis, quadriseriatim positis, interstitiis parce quadriseriatim muricato-punctatis, suturaque tuberculis parvis uniseriatim notatis. Long. ·3—·37.

Herbst, Käfer, 3, 21; tab. 21, fig. 6: Oliv. Ins. 4, p. 9; tab. 2, fig. 8.

Scarabæus tuberculatus, De Geer, 4, 317; tab. 19, fig. 2.

Trox serrulatus, Beauv. Ins. 176, tab. 46, fig. 9.

Trox crenulicularis, Say, Long's Exped. St. Peter's 2, 278.

Middle and Southern States, not rare. Besides the apical emarginate process, the anterior tibiæ have only one prominent tooth at the middle; above this are some fine crenulations. This species is not much like T. sabulosus of Europe, with which Olivier compares it, but is the only one known to me that will agree with the descriptions or figures.

6. T. erinaceus, minus elongatus, subovatus, niger, thorace latitudine fere triplo breviore, lateribus late rotundatis, setis nigris penicellato, dorso bicostato, elytris striis distinctis, interstitiis parce muricato-punctatis interstitiis 3, 5, 7, 9 tuberculis valde elevatis, oblongis, acutis nigro-penicellatis, serie suturali paulo minore ornatis. Long. ·25.

South Carolina, Mr. Zimmermann. The intervals between the series of large elevations are marked with a scarcely distinct series of tubercles, hardly larger than the scattered elevated punctures. The denticulations of the anterior tibiæ are not distinct, but one near the middle is a little more prominent.

7. T. terrestris, breviusculus, ovatus, niger (præcipue sordidus), thorace latitudine duplo breviore, lateribus vix late rotundatis, subreticulatim inæquali, elytris punctis quadratis seriatis, interstitiis alternis elevatis subinterruptis, brevissime sordide setosis, alternis (alteris) parce muricato-punctatis. Long. ·21—·24.

Say, Journ. Acad. Nat. Sc. 5, 192.

Middle and Southern States, abundant. The inequalities of the thorax are less developed than in those above described, and are connected together so as to give a reticulated appearance; five of the cells are adjacent to the base, and three fill up the apex. The anterior tibiæ, besides the universally found square apical prominence, have only one moderate tooth below the middle.

8. T. capillaris, longiusculus, ovatus, sordide niger, thorace parce setoso, latitudine vix sesquibreviore, lateribus fere rectis, inæquali, dorso bicos-

tato, elytris striis tenuibus elevatis notatis, et punctis parcis notatis, interstitiis tuberculis vix elevatis breviter nigro-fasciculatis ornatis, seriebus alternis maioribus; serie suturali autem secundæ æquali. Long. ·36—·40.

Say, Journ. Acad., Nat. Sc.. 3, 238: Harris, Trans. Hartford Soc. Nat. Hist. 77.

Middle, Southern and Western States: the anterior tibiæ have a prominent tooth below the middle and a smaller one above the middle. When the elytra are very carefully cleaned the elevated lines towards the suture are seen to be double, while beyond the third series of the larger bunches of bristles, they vanish entirely, and rows of punctures alone are seen. The inequalities of the thorax consist of the two entire dorsal costæ and a smaller one each side, extending from the base beyond the middle.

B. *Thorax haud inæqualis.*

9. T. variolatus, elongatus, niger, thorace latitudine duplo breviore, lateribus antice rotundatis, confertim punctato breviter setoso, late canaliculato et marginato, elytris striis tenuibus elevatis punctatis, interstitiis fulvo-penicellatis, alternatim paulo elevatis, seriebus alternis maioribus. Long. ·25.

Melsheimer, Proc. Acad. 2, 137.

Middle States. The sutural series of bunches of bristles is larger than the one adjacent. The anterior tibiæ have two or three very small teeth on the outer margin. Closely resembles the next, but readily distinguished by the elevation of the alternate intervals, and by the larger bunches of hair on the elevated spaces.

10. T. æqualis, elongatus, niger, thorace latitudine duplo breviore, lateribus antice rotundatis late deplanatis, confertim punctato, breviter fulvo setoso, dorso subcanaliculato, elytris striis tenuibus elevatis punctatis, interstitiis æqualiter uniseriatim fulvo penicellatis. Long. ·25.

Say, new species of insects of Louisiana, (1832).

Middle and Southern States. The anterior tibiæ have one small tooth near the apical prominence, which is bidentate.

11. T. fascifer, elongatus, niger, thorace latitudine duplo breviore, lateribus late rotundatis, late deplanatis, confertim subtilius punctato, breviter fulvo setoso, dorso vix canaliculato, elytris striis tenuibus elevatis subtilius punctatis, interstitiis æqualiter uniseriatim fulvo penicellatis. Long. ·26.

One specimen, San Francisco. Precisely similar in form and appearance to the preceding, but differs in having the striæ of the elytra finely instead of coarsely punctured: the outer margin of the anterior tibiæ above the terminal bidentate prominence is marked with three small but distinct teeth.

12. T. laticollis, minus elongatus, niger, nitidus, thorace latitudine plus duplo breviore, lateribus magis rotundatis, late explanatis, angulis posticis valde obtusis, parce setoso, grossius punctato, late canaliculato, elytris striis subtilius punctatis, interstitiis planis fasciculis minutis nigris uniseriatim ornatis. Long. ·24.

One specimen, New York. Broader than the two preceding, with the sides of the thorax considerably rounded, so that the posterior angles become obtuse: the fascicles of the elytra are composed of only three or four short black bristles, which arise from a somewhat muricate puncture. The anterior tibiæ have three small equidistant teeth, exclusive of the terminal prominence.

13. T. striatus, oblongus, convexus, nigro-piceus, nitidus, thorace latitudine plus duplo breviore, lateribus angustius marginatis late rotundatis, sat dense punctato subcanaliculato, elytris glabris, striis profunde crenatis impressis, interstitiis subconvexis, parce punctulatis. Long. ·25.

Melsheimer, Proc. Acad. 2, 137.

Pennsylvania, Rev. D. Zeigler; very rare. Besides the strongly bidentate apical tooth, the anterior tibiæ are armed with three small teeth: the posterior angles of the teeth are nearly rectangular.

14. T. atrox, elongatus, ovatus, niger, thorace latitudine duplo breviore, late marginato, confertim punctato, breviter setoso, subcanaliculato, lateribus late rotundatis, elytris striis duplicatis crenatis, interstitiis uniseriatim flavo-setosis. Long. ·33.

One specimen, found near Long's Peak. The setæ of the elytra arise from small muricated punctures. The anterior tibiæ are more dilated than in the other species; the terminal tooth is very much rounded, and above it are two or three sinuosities indicating other teeth. The form is that of T. variolatus, but larger.

OMORGUS Er.

This genus, described at length in Wiegmann's Archiv., (13, 111) and referred to in Erichson's Ins. Deutsch. (925), contains the largest species of our native Trogidæ. It differs from Trox by the corneous prominent ligula, by the first joint of the labial palpi being longer than the second, and finally by the terminal hook of the maxillæ being cleft, and the second hook being single. (In Trox the terminal hook is usually trifid.) As these characters are difficult, certain differences in appearance may be made use of to separate the two genera. Thus in Trox the sides of the thorax are strongly ciliated, and broadly regularly rounded, while in Omorgus the sides are hardly ciliate, and are frequently irregular, and sometimes toothed: the eyes of our native species of Trox are reticulated, and the posterior tibiæ toothed; while in Omorgus the eyes are smooth, and the posterior tibiæ in our native species without teeth. Of these habitual characters, reliance can be placed absolutely upon none but the structure of the sides of the thorax, as according to Erichson, species of Trox occur in which the eyes are smooth and the posterior tibiæ toothless. Our species may be divided thus:

A. *Corpus apterum; thorace bullis nitidis ornato.*

1. O. texanus, apterus niger, convexus, thorace cataphracto valde inæquali, lateribus rotundatis ante basin subincisis, elytris seriatim grosse punctatis nitidis irregulariter cœlatis. Long. ·8.

Eagle Pass, Texas, collected by Mr. Schott, under Major Emory, of the U.S. and Mexican Boundary Commission, and also by Lieut. Haldeman. This species is larger than O. scutellaris, and the lines of punctures on the elytra are better marked; but except in the form of the sides of the thorax, there appears to be no special difference; as in that species, the posterior outer angle of the large four-angled bulla each side of the dorsal channel is produced.

2. O. scutellaris, apterus niger, thorace cataphracto, valde inæquali, lateribus rotundatis, elytris seriatim minus distincte punctatis, transversim cœlatis, interstitiis subquadratis, subæqualiter parum elevatis. Long. ·6—·65.

Trox scutellaris Say, Journ. Acad. Nat. Sc., 3, 238.

Kansas Territory near the mountains: New Mexico, Mr. Fendler: abundant.

3. O. suturalis, apterus niger, thorace cataphracto, valde inæquali, lateribus rotundatis, elytris minus distincte seriatim punctatis, transversim cœlatis, interstitiis inæqualiter magis elevatis, sutura costata. Long. ·63.

Texas Mr. Schott, two specimens. Distinguished from the preceding by the more elevated and irregular shining spaces of the elytra, and by the suture being elevated in the form of a costa.

4. O. umbonatus, apterus niger, thorace cataphracto, valde inæquali, lateribus rotundatis, elytris minus distincte seriatim punctatis, interstitiis transversim cœlatis, alternatim magis elevatis. Long. ·65.

Texas, Messrs. Schott & Clark. Also allied to O. scutellaris, but besides the inequality of the rows of elevations of the elytra, the four-angled bulla each side of the dorsal channel of the thorax has the posterior outer angle not produced, and almost obtuse. The body is also more elongated.

B. *Corpus alatum; thorax tuberculis punctatis haud nitidis ornatis.*

5. O. scabrosus, sordide niger, opacus, thorace valde inæquali, lateribus rotundatis pone medium incisis, angulis posticis rotundatis, elytris tuberculis magis elevatis cataphractis seriatis ornato, seriebus alternis maioribus, interstitiis punctis muricatis sparsis fere inordinatis. Long. ·57—·7.

Trox scabrosus Beauv., Ins. d'Afr. et d'Amer. 175, tab. 46, fig. 4.

New York, Florida, Texas. This species has entirely the appearance of the next, from which it seems to differ only by its usually much larger size, and by the sides of the thorax (excluding the indentation) being rounded instead of angulated, and by the elevated points between the large series of tubercles of the elytra being much larger, and by some of them forming intermediate series of smaller tubercles. As in the next there is a sutural series of small tubercles.

This large species is abundant, especially near the sea shore.

6. O. pustulatus, sordide fuscus, vel niger, opacus, thorace valde inæquali, lateribus medio fere angulatis, pone medium incisis, angulis posticis rotundatis, elytris tuberculis serie quadruplici et ad suturam positis magis elevatis cataphractis, interstitiis parce inordinatim muricato-punctatis. Long. ·55—·6.

? Trox tuberculatus Beauv., Ins. 175, tab. 46, fig. 3.

Southern States, not rare. This species agrees very well with Beauvois' figure, but his insect is said in the text to have been found in Hayti. It is remarkable that while he mentions that Trox tuberculatus (Olivier) was unknown to him, he should retain for his own very different species the same specific name.

This species is distinguished (apart from the differences in the elytra) from the following as well as the preceding species by the sides of the thorax converging obliquely from the middle to the apex; the effect of this is to produce an indistinct angle near the middle; this character in consequence of the gradual curving of the sides is not seen either in O. scabrosus or in O. asper.

7. O. asper, niger, sordidus, opacus, thorace valde inæquali, lateribus late rotundatis, pone medium subincisis, angulis posticis latius rotundatis, elytris tuberculis magis elevatis cataphractis quadruplici serie ornatis, sutura interstitiisque tuberculis minutis uniseriatim positis, et ordinatim profunde punctatis. Long. ·5.

Georgia, South Carolina, Mr. Zimmermann. The elevated punctures scattered irregularly between the rows of tubercles, as seen in the two preceding species, have here disappeared; the intervals are somewhat unequal, and in each are seen two moderately regular rows of large punctures, with an intervening series of small tubercles, which like the larger tubercles are covered with a brown crust. These small tubercles are, however, scarcely more elevated than the places between the punctures forming the rows. The lateral incision of the thorax is much less deep than in the preceding species, and the posterior angles are broader and less prominent.

8. O. punctatus, griseus, thorace inæquali, lateribus obliquis late rotundatis, pone medium subincisis, angulis posticis vix rotundatis, canali dorsali antice mediocri, elytris seriatim crenato-punctatis, interstitiis parce subtiliter muricato-punctatis, alternis paulo elevatis nigro-tesselatis. Long. ·46—·55.

Trox punctatus Germ. Ins. Nov. 113.

Trox alternatus Say, Bost. Journ. Nat. Hist. 1, 179.

Trox crenatus? Beauv., Ins. 176, tab. 46, fig. 1: (nec Oliv., Ent. 4, tab. 1, f. 4.)

Trox denticulatus? Beauv., Ins. 175, tab. 46, fig. 7, 8: (nec Oliv. Ent. 4, tab. 2, fig. 14.)

? Trox unistriatus Beauv., Ins. 175, tab. 46, fig. 5.

Our most abundant species, found from New York to Santa Fe and Texas. The tesselated spots of the elytra in well preserved specimens afford an excellent character for distinguishing it: greasy specimens are uniformly black in color, and in such the absence of tubercles on the elytra, and the less deep dorsal channel of the thorax may be taken as distinguishing marks. The punctures of the striæ of the elytra vary somewhat in size; sometimes they are small, deep and well

defined; at other times they are broad and subquadrate, so that the less elevated interstitial spaces appear transversely rugous: the alternate intervals are sometimes very distinctly, and sometimes hardly apparently elevated, yet with a large series of specimens these differences shade imperceptibly together. The inequalities of the thorax are much less conspicuous than in the following species, and the four usual posterior tubercles are rather flattened.

The synonym last quoted is not certain, yet as specimens occur in which the sutural space is more distinctly elevated than the others, it would be safer to refer it here, than to retain it as a species, without any distinct character. Trox crenatus and denticulatus (Oliv.) are described as South American species, and do not appear to resemble those described under the same name by Beauvois.

9. O. morsus, sordidus (vel niger) thorace valde inæquali, lateribus late rotundatis, pone medium paulo incisis, angulis posticis late rotundatis, dorso antice valde canaliculato, elytris seriatim crenato-punctatis, interstitiis alternatim modice elevatis, interruptis (subtesselatis) tuberculis nitidis obtusis, alternis tuberculis minoribus notatis. Long. ·5—·55.

Texas and Kansas. Very similar to the next species, and differs principally in having the sides of the thorax distinctly incised a little behind the middle. In well preserved specimens, the elytra would probably be tessellated, as in the preceding species: between the large tubercles are seen rough places, as if for the insertion of short bristles, precisely as in badly preserved specimens of O. punctatus: the smaller series of tubercles are sometimes hardly visible. The inequalities of the thorax are very much elevated, and the four posterior tubercles very distinct, the outer ones as usual being interrupted.

10. O. integer, sordidus (vel niger) thorace valde inæquali, lateribus late rotundatis, haud incisis, angulis posticis rotundatis, disco antice valde canaliculato, elytris seriatim crenato-punctatis, interstitiis interruptis tuberculatis, alternatim magis elevatis. Long. ·5—·53.

Texas and Northern Sonora, near Tucson. As in some specimens the spaces between the black tubercles are covered with a brown crust, the elytra are probably tessellate in well preserved individuals. Besides the absence of the lateral incision of the thorax, this species differs from the preceding by the tubercles of the elytra being more closely arranged, and by the less elevated intervals being more unequal. In one specimen, however, the intermediate rows of small tubercles are almost obsolete.

11. O. tesselatus, convexus, sordide cinereus, thorace inæquali, lateribus magis rotundatis haud incisis, angulis posticis paulo rotundatis, disco antice valde canaliculato, elytris muricato-punctatis, crenato-striatis, interstitiis paulo convexis spatiis quadratis nigris lævigatis, parum elevatis tesselatis. Long. ·61—·65.

This fine species is contained in the beautiful series of Coleoptera brought by Dr. Thos. H. Webb from the boundary between Mexico and the United States, and is labelled "San Diego trip": for the purpose of completing the present genus, the description is placed here, though it properly belongs to a paper to be found below.

The form of the thorax is similar to that of the preceding, but the elevations, although very sudden, are smaller, and the anterior one is distinctly divided into two longitudinal ridges, the outer one, of course, being shorter; the elevations of the elytra are nearly equal, except the sutural row, which is smaller. The anterior tibiæ are armed with a distinct tooth about the middle.

Some corrections in the Nomenclature of Coleoptera found in the United States.

BY JOHN L. LE CONTE, M. D.

During the course of years through which our Coleoptera have gradually been made known, too often under great disadvantages arising from the limited libraries, and still more limited collections to be found in this country, many species have been referred to wrong genera, and thus became placed in such relation to

known species as very much to confuse subsequent investigators. The student of local faunæ alone can be expected to remove these obstacles, which fortunately are now but few in number. Such of them as have come before my view while arranging in my collection several families, upon which I am not yet prepared to publish special investigations, are here presented, in the hope of economizing time and labor for other entomologists.

Besides these, I have found it necessary to indicate several generic synonyms, which have been created by want of familiarity with foreign species belonging to genera not previously known in this part of the globe, or which, from the fanciful classifications frequently invented in the study of large groups, are so described as to be irrecognizable, without typical species. It is to be understood that the corrections here made embrace only such as have not appeared in Dr. Melsheimer's Catalogue of Described Coleoptera, or in any of the synopses or monographs published in this country or Europe, so far as known to the author.

1. Elmis vittatus Mels. Proc. Acad. 2, 99. Well preserved specimens of this species, found at Baltimore, which I owe to the kindness of Mr. J. P. Wild, have proved that the reference to E. 4-notatus Say, made by me in Proc. Acad. 6, 44, is incorrect. The mutilated specimen in Dr. Melsheimer's collection was insufficient to make known the character of the species, which is larger and narrower than E. 4-notatus, with the sides of the thorax less rounded, and the punctures composing the striæ of the elytra smaller and less distant. The color is yellow, with the head, sides of the thorax, margin and suture of the elytra, blackish, and the postpectus, femora and tibiæ dusky. From E. bivittatus Lec. it is distinguished by its smaller size, paler color, and by the narrower and less convex thorax having the sides less rounded.

2. Macronychus lateralis Mels. Proc. Acad. 2, 99, does not differ from M. glabratus Say, Journ. Ac. 5, 187.

3. Simplocaria strigosa Mels. Proc. Acad. 2, 118, (Georissus strigosus Mels. Cat. Descr. Col. 35) has been shown by me (Proc. Acad. 7,) to be a Syncalypta, and very probably European.

4. Cicones marginalis Mels. Proc. Acad. 2, 112, must be referred to Coxelus.

5. Atomaria crenata Mels. Proc. Acad. 2, 114 (Cryptophagus gilvellus Cat. Descr. Col. 45) belongs to Litargus Er.

6. Phanæus torrens Lec. Journ. Acad. 2d, 1, 85, by the completion of the series of specimens, proves to be a bright colored, short horned variety of P. triangularis.

7. Onthophagus niger Mels. is a dark variety of O. Janus.

8. Ochodæus obscurus Lec. Journ. Acad. 2d, 1, 86, is no Ochodæus, but seems related to Aesalus, near which it will form a new genus.

9. Ochodæus americanus Westwood, Trans. Ent. Soc. London, 2d, 2, 66, is, on the contrary, a true Ochodæus, but was previously known as Bolbocerus musculus Say, Bost. Journ. Nat. Hist. 1, 179.

10. Scarabæus splendens Beauv. 89, tab. 26, fig. 2, is referred by Mr. Chevrolat to Xyloryctes, (Ann. Ent. Soc. Tr. 2d, 18, 641,) but appears to be really Strategus Antæus ♀.

11. Scarabæus Bosci Beauv. ibid. fig. 1, is also a Strategus, not described by Burmeister.

12. Anomala marginella Lec. Proc. Acad. 7, 81, is the previously known A. binotata Burm.

13. The species of Tostegoptera described by me, viz., T. cribrosa, ventricosa, æqualis (Proc. Acad. 6, 231 and 440) form a new genus distinguished by the ligula being deeply and squarely emarginate, while in Tostegop-

tera the same part is subtruncate; the emargination in T. æqualis is less than in the other two, but is quite obvious. This genus may be separated under the name Eugastra.

14. Polyphylla variolosa Harris, is referred by Erichson (Ins. Deutschl. 659) to Melolontha occidentalis Linn., an entirely different species of the same genus, which is found in the Southern States, and which has the suture and three vittæ on each elytron covered with white hair.

15. Melolontha 10-linea ta Say, a species of the same genus, is closely allied if not the same as the Mexican Polyph. leucogramma Blanch. (Cat. Mus. 161.)

16. Atractopterus incongruus Lec. (Trans. Am. Phil. Soc. 10, 454) is very similar to the European Sericosomus fugax; the name Sericosomus is founded upon characters, although recognizable, too slight to be admissible in a system of rational classification, but as its type coincides with Atractopterus, it seems proper that the latter name should be suppressed.

17. Pyractomena linearis Lec. Proc. Acad. 5, 336, is P. lucifera Mels. ibid. 2, 304; the latter name I placed incorrectly as a synonym of P. angulata.

18. Pyractomena fenestralis Mels. ibid. 2, 304, is not Ellychnia corrusca, as stated by me (Proc. Acad. 5, 334) but another species of Ellychnia, allied to E. nigricans.

19. Allœocnemis Lec. Proc. Acad, 6, 232. This must be added to the already numerous synonyms of Polycaon Lap. which has been passed from Cleridæ to Melyridæ, and as in the present instance to Nitidulidæ. Its true resting place is, as indicated by Erichson in Ptiniores, where it approaches on the one hand Apate, and on the other Lyctus; a curious species found in Texas by Lieut. Haldeman completes the chain of analogy in form and sculpture.

20. Triphyllus rugosus Randall, (Cis rugosus Mels. Cat. Descr. Col. 85,) is Endecatomus reticulatus Mellié, Ann. Ent. Soc. Fr. 2d, 6, 213.

21. Xyletinus sericeus Say, Journ. Acad. 5, 171, belongs to Trypopitys Redt.

22. Xyletinus flabellicornis Sturm, Cat. (1826) tab. 1, fig. 7, does not belong to the family of Ptiniores, nor can I at present indicate where it should be placed.

23. Tomicus liminaris Harris, (Ins. Inj. Veget. 78,) found by Miss Morris to inflict serious injury upon peach trees, belongs to Phloeotribus.

24. Pachyrhynchus Schönherri Kirby, Fauna Bor. Am. 203; *Rhinaris Schonherri* Schönh. 7, 2, 369, is merely Ithycerus curculionoides Schönh. 1, 246.

25. Brachytarsus obsoletus Schönh. (1839) 5, 167, is Anthribus variegatus Say, (1826) Journ. Acad. 5, 251.

26. Brachytarsus brevis Schönh. (ibid.) is Anthribus tomentosus Say, ibid.

27. Anthribus coronatus Schönh. (1833) 1, 141, is A. cornutus Say, (1831,) Curcul. 4.

28. Anthribus capillicornis Say, (1826,) is Aræcerus coffeæ Schönh. (Fabr.)

29. Anthribus 4-notatus Say, (1826,) is A. bimaculatus Oliv. and belongs to Tropideres.

30. Trichoenemis Lec. (Journ. Acad. 2d, 2, 110) is not sufficiently distinct from Ergates; the Californian species must therefore be called E. spiculatus.

32. Tinopus Lec. (ibid. 2d, 2, 19) is the same as Rhopalophora Serv.

33. The genus Argaleus Lec. (ibid. 2d, 1, 319) is founded on defective characters; the type A. nitens is congeneric with Leptura monticola Randall, upon which I founded Evodinus; the latter genus must therefore be suppressed.

The second species of Argaleus (Pachyta attenuata Hald.) enters the genus Anthophylax Lec. Piodes must be united with Acmæops. Commencing then with Rhagium, our genera of Lepturidæ, having the front oblique, the mentum trapezoidal, and the gula emarginate each side of the mentum, may be thus arranged:

1. Antennæ ante oculares; tibiæ calcaribus ad apicem sitis;
   a. Sterna gibba; coxæ anticæ discretæ — Rhagium.
   b. Prosternum simplex; coxæ anticæ contiguæ; oculi integerrimi;
      Mesosternum protuberans — Gaurotes.
      Mesosternum planum — Acmæops.
2. Antennæ vix interoculares;
   a. Tibiæ calcaribus ante apicem sitis — Toxotus.
   b. Tibiæ calcaribus ad apicem sitis;
      Oculi mediocres; elytra postice angustata — Argaleus.
      Oculi magni; elytra linearia — Centrodera.
2. Antennæ interoculares; oculi intus emarginati; tibiæ calc. ad apicem sitis;
   a. Palpi labiales dilatati — Anthophylax.
   b. Palpi labiales maxillaribus non latiores.
      Antennæ articulis externis utrinque impressis — Typocerus.
      Antennæ 11-articulatæ articulis haud impressis;
         Thorax angulis posticis productis — Strangalia.
         Thorax angulis posticis haud productis — Leptura.

The separation of the last two genera is evidently unnatural. The separation of Centrodera and Argaleus is also on very slight characters, but as thus far there is a peculiarity of appearance, which renders each easy of recognition, it will be more convenient to permit them to remain distinct. The other genera appears to be entirely natural.

34. Taraxis Lec. (Agassiz' Lake Superior, 237) does not appear different from Auchenia.

35. Heliophilus fossor Lec. (Journ. Acad. 2d, 1, 92) appears not to be related to Heliophilus, but to be a new genus near Opatrum; Opatrum latimanus, described at the same time, is also referred incorrectly; it is allied to and perhaps congeneric with Leichenum.

36. Pytho pallida Say, (Journ. Acad. 3, 271,) belongs to Adelina.

37. Boletophagus tetraopes Newman, (Ent. Mag. 5, 378,) is Eledona depressa Randall, Bost. Journ. Nat. Hist. 2, 21; the last mentioned name has priority by two months.

38. Boletophagus silphides Newman, ibid. is on the other hand a species of Peltis, (!!) so closely allied to P. dentata of Europe, that by Dejean it was considered identical.

39. In Psorodes Solier (Studi Entom. 167) has placed Helops contractus Beauv. under the name P. inflata. The same insect was long ago made the type of a special genus, Meracantha canadensis Kirby, (Fauna Bor. Am. 238.) The name must therefore be Meracantha contracta.

40. Stenochia gracilis Lec. (Ann. Lyc. 5, 150) is allied to Allecula; the penultimate joint of the tarsi is lobed, and the ungues are serrate.

41. Mycetochares ruficornis Mels. Proc. Acad. 3, 59, is a Melandryide, congeneric with Hallomenus luridus Hald.

42. The last named species does not appear sufficiently distinct from H. scapularis Mels. Proc. Acad. 3, 57.

43. Orchesia sericea Mels. ibid. upon which the genus Calasia Hald. is constructed is a true Scraptia.

44. Scraptia lutea Hald. is not different from S. pallipes Mels.

45. S. americana Hald. placed in the Cat. Descr. Col. p. 143, as synonymous with the last, is a different species.

46. S. rugosa and flavicollis Hald. do not belong to Scraptia; but I cannot find any genus in which they may be placed; they appear rather related to some Tenebrionides, than to Melandryades.

47. Anaspis 4-punctata Say, Journ. Acad. 3, 276, is a true Mordella.

48. Anaspis ventralis Mels. seems to be a variety of A. rufa Say, Journ. Acad. 5, 241. A. filiformis Lec. Agassiz' Lake Superior 231, is the male of the same.

49. Anthobates Lec. (Lac. Sup. 231) must be reunited with Anaspis; the character upon which I separated it is entirely false; nor can I account for such an error of observation.

50. Lytta fulgifer Lec. is merely a dark colored variety of L. Nuttalli Say.

51. Eugnathus‖ Lec. Trans Am. Phil. Soc. (10, 375,) a genus allied to Panagæus, must be changed to Micrixys. The name Eugnathus has been already twice used in the order of Coleoptera.

Descriptions of new Coleoptera collected by Thos. H. Webb, M.D., in the years 1850–51 *and* 52, *while Secretary to the U. S. and Mexican Boundary Commission.*

By JOHN L. LE CONTE, M. D.

Most of the species collected by Dr. Webb, have been already described by me from other sources, but the remaining nondescripts contain a comparatively greater number of large and beautiful species than any other collection yet obtained. The localities are mostly given within limits.

Cicindela prætextata, longiuscula, subtus viridi-ænea, abdominis lateribus albo-pilosis, supra fusco-cuprea, opaca; labro albo transversim quadrato, antice subtiliter tridentato, fronte utrinque subtiliter striato, thorace lateribus rotundatis albo-pilosis, latitudine haud longiore modice convexo, impressionibus transversis profundis; elytris thorace sesqui latioribus modice convexis, limbo latiusculo albo, intus obtuse dentato, fascia intermedia obliqua longiuscula recta, subtilius haud profunde punctatis: palpis sexus utriusque testaceis, articulo ultimo æneo. Long. ·45—·6.

"San Diego to El Paso." By a figure kindly sent me by Prof. Lacordaire, this species seems somewhat related to C. circumpicta, yet the prolonged oblique band of the elytra, as well as the thorax, which is not brilliant and not deeply sulcate, will distinguish it. The species here described appears in general more related to C. generosa, formosa, &c., but is more elongated in form. The apex of the elytra is not at all serrate, and in the female each is considerably rounded, while in the male they are conjointly rounded and the little tooth of the suture is more obvious.

Two males found on the "San Diego trip," differ from the type by the more brilliant coppery color of the upper surface, the more distinct punctures of the elytra, and by the middle band of the elytra being gradually dilated internally and truncate, while in the type it is rounded at tip, and not dilated.

Cicindela lemniscata, elongata cylindrica subtus viridiænea, abdominis lateribus albo-pilosis, supra cuprea; labro albo rotundato, subtridentato, fronte concavo, utrinque striato viridi-micante, antennis nigris, thorace rugoso, cylindrico, lateribus albo-pilosis vix rotundatis, impressionibus transversis profundis, disco medio purpureo, elytris thorace vix sesqui latioribus, parallelis apice oblique rotundatis, densius fortiter punctatis, vitta utrinque discoidali integra alba pone medium intus obtuse bidentata, et apicem ad suturam ambiente: pedibus palpisque testaceis, his apice æneis. Long. ·31.

"San Diego trip," one male. This small and slender species is the only North American one known to me in which the elytra are ornamented with a vitta equally remote from the suture and margin: the outline of the vitta is straight,

rendered irregular internally by two slight and obtuse teeth near the tip; it is also prolonged around the apical margin to the suture; the tip of each elytron is slightly rounded, and the margin is not serrate.

Melanotus erro, nigro-piceus, nitidus, mandibulis fortiter rugosis, thorace capite cum oculis haud latiore, latitudine fere triplo breviore, postice angustato, angulis posticis obtusissimis valde rotundatis tenuiter canaliculato, lateribus rotundatis anguste marginatis, basi utrinque late impresso alutaceo, elytris thorace haud latioribus striis profundis impunctatis, interstitiis fere planis, antennis palpis pedibusque rufo-testaceis. Long. ·57.

One specimen, "San Diego trip." This species, the second discovered in North America, is considerably larger than A. scaritides Chaud. (*Cratognathus scar.* Perty, *Amblynothus niger* Gray.) which it otherwise closely resembles in general characters.

Acilius maculatus, ovalis, paulo convexus, infra ferrugineus, supra niger nitidus, capite ante oculos, maculaque transversa verticali flavis, thorace lateribus fasciaque angusta postice concava ad medium interrupta flavis, elytris margine maculis tribus annexis, alterisque disci (quarum una ad medium prope suturam multo maior) læte flavis, pedibus anterioribus testaceis. Long. ·55.

Fem. striolis a basi ad quadrantem elytri singuli extensis. Mas latet.

One specimen from the Copper mines. In this beautiful species there is a complete absence of the small anastomosing spots seen in our other native species. The ground color above is black with well defined bright yellow spots: those of the head consist as usual of the anterior part, and the transverse vertical spot, which is emarginate anteriorly. The thorax has the sides broadly yellow, and two narrow discoidal spots running obliquely outwards and backwards, so as to form a fascia concave behind and interrupted at the middle. The spots of the elytra consist of a yellow margin extending nearly to the tip; joined to it are three spots, the first extending from the base almost to the middle, undulated internally and suddenly dilated at its posterior extremity, as if by the addition of a small spot; the second is quadrate and placed about the second third; the third is at the tip of the yellow margin and is subtriangular, with the apex directed anteriorly: there are besides on each elytron two basal spots, the outer of which is elongated; two small quadrate spots at the anterior fourth; a large rounded one about the middle and near the suture; a smaller one still nearer the suture at the posterior fourth, and a small one very near the apex. A small yellow dot may be seen between the two basal spots, but is perhaps sometimes wanting: the surface is nearly smooth; the usual series of punctures are distinct, and from the middle of the base of each elytron to the large spot are scattered a few short striæ as in the females of other species.

Dineutes integer, oblongo-ovalis dorso convexiusculus, supra niger subænescens, minus nitidus; elytris obsolete punctatis tenuiter obsolete striatis, postice coniunctim rotundato-truncatis, vix undulato-emarginatis, subtus niger, pedibus posticis picescentibus. Long. ·61.

One specimen from the Copper mines. From D. vittatus, which it equals in size, this species is at once distinguished by the tips of the elytra being conjointly broadly rounded, so as to leave no apparent angle at the suture.

Stethoxus subsulcatus, elongato-ovalis, convexus, utrinque attenuatus, olivaceo-niger, nitidus, thorace trapezoideo, latitudine plus duplo breviore lateribus vix rotundatis, basi late emarginato, angulis posticis apice rotundatis, elytris obsolete sulcatis, sulcis utrinque obliteratis, lineisque punctorum solitis tribus notatis; antennis palpisque ferrugineis. Long. 1.25, lat. ·65.

At Camp 7. Still narrower than S. triangularis (*Hydrophilus triangularis* Say), and readily distinguished by the broad indistinct furrows of the elytra: the furrow next the suture can hardly be seen.

Plusiotis gloriosa supra læte psittacina, clypeo punctulato margine sub-

tili elevato aureo, thorace scutelloque limbo toto angusto aureo punctulatis, elytris parce punctulatis margine laterali vittisque quatuor impressis splendide aureis nitidissimis, interstitiis 2 et 3io foveis inauratis confluentibus vittam parvam simulantibus ornatis, subtus aureo-viridis, commissuris omnibus aureis, mesosterno subito declivi, vix porrecto. Long. ·78—·92.

Copper mines and at Camp No. 6. This most splendid species belongs to division II. of Burmeister, (Lamell. 2, 420), but is very different from any described by him.

Chalepus obsoletus, piceo-nigra nitida, clypeo punctato, emarginato, thorace subtilissime reticulato, parce punctato, apice coreo marginato, elytris striis solitis haud impressis subtiliter punctatis, interstitiis alternis parce subtiliter punctatis. Long. ·82, lat. ·43.

One specimen, "San Diego trip." Larger and proportionally narrower than C. trachypygus; the striæ of the elytra are merely rows of fine punctures. The pygidium is polished, sparsely and somewhat finely punctured, with a strongly impressed line running around its posterior margin.

Polyphylla cavifrons, fusco-ferruginea pube squamulosa pallide fusca parce vestita, thorace lateribus sulco dorsali plagaque utrinque basali densius pubescente, sat dense minus subtiliter punctato, clypeo (maris) lateribus oblique divergentibus, antice truncato valde concavo, elytris sutura vittisque angustis utrinque tribus densius squamulosis, subtus densius squamulosa, pectoribus lana longissima tectis, tibiis anticis fortiter 3-dentatis. Long. ·88—1·10.

One male found on the San Diego trip and another mutilated one procured by Mr. Schott on the Rio Grande. Similar in form and size to P. variolosa Harris, but differs in the clypeus being much more concave, and wider at tip than at base. The lines on the elytra are only moderately distinct, and the short humeral vitta seen in P. 10-lineata is entirely wanting. From all other American species known, it differs in having the anterior tibiæ of the male (and therefore also of the female) strongly three toothed, thus belonging to Erichson's division B. (Ins. Deutschl. 659) with the European P. hololeuca Er.

Copris mœcha, nigra, clypeo punctato apice subemarginato, (maris cornu elongato cylindrico armato) thorace punctato, disci medio lævi, canaliculato (maris antice retuso emarginato et abrupte declivi, lateribus cornu compresso valde elevato armato, linea solita elevata submarginali, impressioneque transversa laterali notato) elytris striis sat profundis subtilius crenatis, interstitiis lævibus. Long. ·77.

One male from Camp 14. Allied to C. anaglyptica, but differs by the much more strongly developed horns, the less dense punctuation of the thorax, and the deeper elytral striæ. From a Central American species known in collections as C. Chevrolatii↓Dej., it differs by having all the hollows of the thorax strongly punctured, and by the clypeus being more distinctly emarginate: it is possibly, however, merely a northern variety of that species.

Ochodæus simplex, ovalis convexus, ferrugineus, breviter fulvo-setosus, punctatus, clypeo haud carinato, transversim leviter sulcato, apice subtruncato, elytris confertim punctatis leviter striatis interstitiis haud elevatis. Long. ·25.

One specimen from the Copper mines. Differs from O. musculus by the absence of the transverse carina of the vertex, and by the anterior margin of the clypeus not being elevated: the teeth of the mandibles cannot be seen.

Ochodæus striatus, oblongo-ovalis, convexus ferrugineus, breviter fulvo-setosus, punctatus, clypeo antice subtruncato subtiliter marginato, vertice elevato vix transversim carinato, thorace postice canaliculato, elytris parcius punctatis striis crenulatis, interstitiis paulo convexis. Long. ·25.

One specimen from Arispe. A little narrower than the preceding, with the vertex elevated, but forming rather a transverse tubercle than a carina. The striæ of the elytra are moderately deep, and the interstices are slightly convex and rather sparsely punctured.

Chalcolepidius Webbii, supra niger, nitidus, subtiliter punctulatus, squamis minutis viridi-cyaneis conspersus, thoracis lateribus elytrorum basi et lateribus pube depressa albida densissime vestitis, antennis fortiter serratis, articulo 2ndo minuto, 3io sequente haud breviore, elytris striis subtiliter punctatis vix impressis. Long. ·95—1·47.

As a slight testimony of my appreciation of the valuable labors of Dr. Webb while connected with the Boundary Commission, I have dedicated to him this very fine species: several specimens were obtained on the journey from San Diego to El Paso, and also on the San Diego trip. The thorax is about one fourth longer than wide, with the sides in the female nearly parallel from the base to within one fourth of the apex, where they converge obliquely and are slightly rounded. The posterior angles are very slightly prolonged, and are somewhat acute, not carinated. The scutellum is cordate, wider posteriorly, and emarginate at each end. The elytra gradually taper from the base, are slightly rounded on the sides, and suddenly rounded at the tip: the striæ are very faint, and are finely punctured.

The thorax of the male is more gradually narrowed anteriorly, and the antennæ extend to the posterior fourth of the thorax, while in the female they reach only to the middle: in both sexes the third joint, though as long, is not as wide as the fourth.

Chalcolepidius smaragdinus, elongatus niger nitidus, dense subtiliter punctatus, undique squamulis læte viridi-aureis dense tectus, antennis pedibusque cyaneis, illis articulis 2 et 3 minutis, thorace latitudine sesqui longiore lateribus antice late rotundatis, scutello obovato, elytris striis fere obsoletis subtilius punctatis. Long. ·9—1·07.

San Diego trip. Similar in form to C. viridipilis, but with the thorax much less suddenly rounded towards the tip: the elytra are also very faintly striate, and the striæ not deeply punctured. The scutellum is not emarginate at either end.

As in C. viridipilis the antennæ of the male are as long as the thorax, and almost flabellate.

Pelecyphorus rimatus, niger, thorace latitudine duplo breviore disco paulo convexo subtilius disperse punctato, lateribus magis rotundatis confluenter rugosis late depressis, angulis posticis obtusis haud rotundatis, elytris ovatis, thorace vix latioribus postice declivibus dorso subplanis grossius punctatis subrugosis, lateribus acute marginatis, epipleuris parce obsolete punctatis. Long. 1·0.

One specimen from Camp No. 7. This species is very different from any of the other Asidites of our country, though it approaches the species indicated by me under the name subcostatus (Proc. Acad. 6, 446): the elytra are however more densely and coarsely punctured, and without the three faint ribs seen in that species. The antennæ are shorter than the head and thorax, and moderately thick, as in P. carinatus, sordidus, &c.

Pelecyphorus difformis, niger, thorace latitudine paulo breviore, lateribus late sensim reflexis, antice rotundatis medio angulatis, dein usque ad basin concavis, basi truncato, angulis posticis fere rectis, disco parcius subtiliter, lateribus grossius et rugose punctatis, elytris thorace vix latioribus, elongato-ovalibus postice acuminatis, minus profunde scabro-punctatis striis distinctis latis modice profundis, humeris minutis porrectis, epipleuris subito reflexis. Long. .95.

Santa Cruz, two specimens: in one the thorax is slightly concave transversely, while in the other the sides are considerably elevated. This species is closely allied to P. elatus Lec. (Proc. Acad. 6, 445) but is smaller and narrower, and at once distinguished by the distinctly striate elytra: the striæ in the other species mentioned, if present, are always very faint.

Eschides liratus, latiusculus ater opacus, minus convexus, supra breviter flavo-pubescens, thorace latitudine sesqui breviore, antrorsum angustato, lateribus rotundatis incrassatis et reflexo-marginatis, angulis anticis acutis, basi truncato, angulis posticis subrectis, dorso inæquali confertim punctato, medio anguste cari-

nato, elytris thorace latioribus, postice declivibus et acuminatis, margine sutura costisque utrinque tribus acute elevatis (interna paulo breviore). Long. ·6.

San Diego trip, one specimen. Of the form of E. opaca; the marginal costa extends to the tip of the elytra, the inner discoidal one ceases at one-third, and the other two at one-fourth from the apex.

Euschides convexicollis, niger nitidus, thorace convexo medio obsolete ad latera discrete punctulato, lateribus tenuiter marginatis, rotundatis, angulis omnibus obtusis haud prominulis, basi rotundata, elytris obovatis, lateribus haud marginatis, apice valde declivibus et obtuse acuminatis, disperse punctulatis et parce subtiliter rugosis. Long. ·63—·85.

Durango, Chihuahua, Copper Mines, Los Organos, and at Camps 5, 6 and 7. This species is of the form of E. obovata Lec. (Ann. Lyc. 5, 127,) but is very different by the convexity of the thorax, which is only very finely margined: the thorax varies in form, being sometimes nearly one half wider than its length, but in general the two dimensions are equal. In the male the elytra are one half wider than the thorax, in the female about twice as wide.

Epitragus submetallicus, piceus æneo-micans, fusco-pubescens, thorace latitudine vix breviore antrorsum subangustato et lateribus rotundato, basi bisinuata, angulis posticis rectis, dorso parum convexo sat punctato, elytris thorace duplo latioribus humeris oblique rotundatis, subtilius densius punctatis, punctisque maioribus obsolete striatis. Long. ·66.

San Diego trip, one specimen. Much larger than E. canaliculatus, with the sides of the thorax rounded in front and parallel behind the middle: the outer striæ of the elytra are almost entirely effaced, those near the suture may be distinguished by the rows of larger punctures. The head is coarsely and thickly punctured, and inside of the superciliary ridge on each side is a moderately deep longitudinal frontal impression.

Cysteodemus cancellatus. *Meloe canc.* Brandt. and Er. Nov. Act. 16, 141; tab. viii. fig. 9.

Los Organos, Camp 7, and San Diego trip. The variety figured by Erichson has an unusual amount of red upon the elytra: that color generally forms an irregular vitta, with diverging and anastomosing branches. It is closely allied to C. vittatus Lec., but is larger, with the thorax more transverse, and the elytra more unequal. The back part of the head is frequently of a dull sanguineous color, and the same variation is also found in C. vittatus.

Lytta atri-vittata, nigra, subtus pube cinerea fasciata, supra dense cinereo-pubescens, capite maculis magnis posticis duabus atris, thorace latitudine longiore, canaliculato, maculis duabus disci magnis atris, lateribus ante medium rotundatis, elytris thorace plus sesqui latioribus vittis utrinque duabus latis atris ad apicem coniunctis, antennis palpis tibiis tarsisque nigris. Long. 1·05.

One male, San Diego trip. This very fine species belongs with L. longicollis and sublineata, which it equals in size; the antennæ are of a brilliant black, the first joint extends beyond the occiput, is slender at base, very much curved beyond the middle, and much compressed and dilated, with a large shallow impression on its anterior face near the apex; the second joint is thick and obconical; the third is two-thirds smaller, and the fourth again larger, so that together they are longer than the second; the fifth and following are almost equal in length to the third and fourth united, and are progressively narrower. The under surface of the body is black, with all the sutures broadly pubescent with dense cinereous hair; the under surface of the femora is also similarly clothed.

Asclera pallida, elongata, testacea dense pallide pubescens, thorace obovato capite vix latiore, obsolete canaliculato latitudine paulo longiore, ponce medium angustato, lateribus antice rotundatis postice subsinuatis, elytris paulo latioribus cylindricis, lineis utrinque tribus obsoletis densius pubescentibus, antennarum articulo 1mo 3io paulo longiore. Long. ·31—·38.

San Diego trip: the pubescence is so dense as almost to conceal the punctures

which are moderately fine: the thorax is very faintly impressed each side anteriorly, and the sides are somewhat blackish in most specimens.

Asclera c a n a, nigra pube subtili cinereo-cana, thorace rufo, obovato latitudine longiore, lateribus ante medium rotundatis dein sensim angustato, maculis tribus anticis infuscatis, dense punctulato, linea angusta dorsali lævi, elytris thorace latioribus confertissime scabro-punctulatis, lineis tribus subelevatis obsoletis, sutura densius pubescente: femoribus basi rufis. Long. ·34.

One specimen, San Diego trip. Allied in form and characters to A. t h o r a c i c a, and, as in that species, the first joint of the antennæ is not longer than the third.

Ripiphorus r u f u s, rufo-ferrugineus nitidus, capite parce punctulato, occipite producto obtuse rotundato vix impresso, thorace elytrisque confertim aciculato-punctatis, illo latitudine fere sesqui longiore, antrorsum sensim angustato, lateribus rectis, basi media longius acute lobata, angulis posticis rectis haud productis; femoribus tibiisque apice rufis. Long. ·27.

One female, San Diego trip. The antennæ are brown; the sides of the occiput converge, and the apex is very obtusely rounded and subtruncate.

Ophryastes v a l i d u s, niger (griseo-squamosus?) breviter parce pubescens, rostro crasso, basi constricto trisulcato, sulcis lateralibus brevibus profundis postice dilatatis et convergentibus, thorace latitudine duplo breviore, apice basique fortiter constricto, lateribus dilatatis obliquis, inæquali foveatim punctato, elytris ovalibus thorace latioribus foveis magnis minus profundis striatim positis notatis, interstitiis paulo convexis, alternatim sublatioribus. Long. ·65.

One specimen, Oct. 20th, (near Chihuahua.) Larger than O. l a t i r o s t r i s Lec. (Proc. Acad. 6, 443) and sufficiently distinct from all the species known.

Ophryastes p o r o s u s, niger cinereo-squamosus, parce breviter pubescens, rostro crasso, basi parum constricto, trisulcato, sulcis externis brevibus dilatatis vix convergentibus, thorace latitudine duplo breviore, antrorsum angustiore, utrinque modice constricto, lateribus rotundatis, acute canaliculato, inæquali sat dense foveato, elytris thorace latioribus rotundato-ovalibus, convexis basi truncatis striis foveatim punctatis, interstitiis paulo convexis. Long. ·37.

From the same locality, one specimen. This also differs very materially from all those heretofore known.

Cælocnemis p u n c t a t u s niger, subnitidus capite thoraceque sat punctatis, hoc latitudine non breviore, subquadrato, postice subangustato lateribus rotundatis ad basin breviter sinuatis, angulis posticis rectis prominulis, elytris thorace vix latioribus convexis seriatim punctatis, interstitiis subtiliter rugulosis sat dense punctatis. Long. ·83.

One specimen, from Lieut. Beckwith's Collection along lat. 38°; probably from Utah, as the genus has not heretofore occurred east of California. This species is more elongated than usual, and differs from all the others known to me by the thorax being less rounded on the sides and less narrowed behind, so that it does not present the cordate form seen in C. dilaticollis, &c. The punctures of the interstices of the elytra are very distinct, and although smaller than those arranged in the rows, are so dense as to render the striæ indistinct.

C. c a l i f o r n i c a Mann. is unknown to me, and from the figure given (Mag. Zool. 1841) approaches more nearly to this species in form; the thorax, however, appears to be more rounded and cordate. The elytra of that species are described as having nine rows of punctures, while in C. d i l a t i c o l l i s Mann. only eight rows are mentioned; the fact is, that in all the species nine rows are seen, but the marginal row in one description was omitted; in cases when two species of the same genus have a different number of striæ on the elytra, the change is produced by some of the striæ becoming obsolete, and the situation of the obsolete striæ can always be determined; no phenomenon of the kind is to be expected in this genus.

Abstract of a Report to Lieut. James M. Gillis, U. S. N., upon the Reptiles collected during the U. S. N. Astronomical Expedition to Chili.

By CHARLES GIRARD.

BATRACHIANS.

1. CYSTIGNATHUS TÆNIATUS, G.—Vomerine teeth situated a little behind the inner nares, well separated upon the middle of the palate. Tongue subelliptical, free posteriorly, and slightly notched upon the same margin. Color greenish yellow, with two dorsal blackish stripes. Limbs barred above. A dark vitta upon the sides of the head, extending from the nostrils, across the eye to the shoulder.

From the neighborhoods of Santiago, Chili.

2. PHYLLOBATES AURATUS G.—Tongue narrow and elongated, free for about the half or two-thirds of its length. Anterior limbs, when stretched backwards, reaching the vent with the tip of longest finger. Inferior surface of thighs granular. Color, above, metallic golden; beneath, uniform bluish brown.

Collected on the Island of Taboga, in the Bay of Panama, by the late Prof. C. B. Adams, of Amherst College, Mass.

OPHIDIANS.

3. ELAPS NIGROCINCTUS, G.—Head subelliptical, broader than the body, which is long and cylindrical. Tail conical, abruptly tapering from its base. Scales smooth, disposed upon fifteen rows. Color reddish, annulated with jet black. Tip of scales blackish. Anterior portion of head black. An occipito-temporal yellowish ring. Tip of tail black.

From Taboga, Bay of Panama

4. DRYOPHIS VITTATUS, G.—Three postorbital plates, two of which constituting the posterior rim of the orbit, the third being placed behind them. Fifth and seventh, or fourth, fifth and sixth labials constituting the inferior rim of the orbit. A black vitta along the upper margin of the upper maxillary plates, extending posteriorly along a portion of the neck.

From Taboga, Bay of Panama.

5. TACHYMENIS CHILENSIS, G.—*Coronella chilensis*, SCHL. Ess. Phys. Serp. II. Part. descr. 1837, 30—GUICH. in *Gay*, Hist. de Chile. Zool. II. 1848, 79. Erpet. Lam. iv. fig. 1. a. b. c. d.—*Dipsas chilensis*, DUM. Mém. Acad. des. Sc. xxiii, 1853, 112; DUM. & B. Erp. gen. VII. i. 1854, 608.—Two anteorbitals. Third and fourth labials constituting the inferior rim of the orbit. Dorsal scales in nineteen rows. Color olivaceous brown, with crossing lines of black. Beneath yellowish, with anterior margin of scutellæ black. Two postocular black vittæ.

From the neighborhoods of Santiago, Chili.

TÆNIOPHIS, G.—Head depressed and detached from the body, which is slender and subcylindrical. Tail tapering to a point and comparatively short. Cephalic plates normal. One anteorbital, and two postorbitals. An elongated, quadrangular loral. Two nasals, nostrils between them. Eye above the medium size, situated above the fourth and fifth labials; pupil circular. Mouth deeply cleft. Scales smooth, disposed upon nineteen longitudinal series. Postabdominal scutella bifid. Subcaudal scutellæ all divided. Colors disposed upon uniform lodgitudinal bands.

Obs. Distinguished from *Diadophis*, to which it is closely related, by the presence of one anteorbital plate, instead of two, by a larger number of longitudinal rows of scales, and the distribution of colors.

Besides the species hereafter diagnosed, a second one (*T. imperialis*, B. & G.,) an inhabitant of the province of Tamaulipas, Mex., was sent to the Smithsonian Institution, by Capt. Van Vliet, U. S. A., as collected near Matamoras.

6 TAENIOPHIS TANTILLUS, G.—Body and tail very slender. Head elongated, and very distinct from the body. Eye proportionally large. A deep chesnut brown band reigns along the dorsal region; light brown on the sides. Beneath greenish or yellowish grey. Upper labials yellowish white. A supercilliary yellowish filet.

From the neighborhood of Santiago, Chili.

SAURIANS.

7. PROCTOTRETUS FEMORATUS, G.—Cephalic plates rugose. Auricular aperture moderate, provided with an arched plate upon its supero-anterior margin, and one or two conical scales beneath and upon the same anterior margin. One series of supralabials. Temporal shields well developed, imbricated and carinated. Sides of neck with but one inconspicuous fold, and covered with small carinated scales. Dorsal scales large, carinated, posteriorly acute, and diminishing in size towards the sides. Abdominal scutellæ smooth and entire. Posterior surface of thighs granular. Tail elongated and slender. Brownish, with two parallel light vittæ on either side, and two series of black spots. Abdomen whitish, unicolor, inferior surface of head, with greyish irregular broken lines.

Collected about Santiago, Chili.

8. PROCTOTRETUS STANTONI, G.—Cephalic plates rugose. Auricular aperture moderate, margined anteriorly with very small scales, one of which larger than the rest. One series of supralabials. Temporal shields well developed, subrounded, imbricated and carinated. Sides of neck with one indistinct fold, and covered with acute and carinated scales, a little smaller than those of the back, which are large, posteriorly subacute and strongly carinated. Abdominal scutellæ rounded posteriorly and slightly carinated. Posterior surface of thighs granular. Tail elongated and slender. Ground color deep brown, with a reddish tint posteriorly; two parallel vittæ on the sides. Abdomen unicolor, with metallic reflections.

Caught in the neighborhood of Santiago, Chili.

A List of Pigeons of the genus CARPOPHAGA, *Selby, in the Collections of the Academy of Natural Sciences of Philadelphia, and of the U. S. Exploring Expedition, (Vincennes and Peacock,) Washington; with descriptions and notices of new and little known species.*

By JOHN CASSIN.

1. CARPOPHAGA ÆNEA, (Linn.) Knip and Prevost's Pigeons ii. pl. 3. Briss. Orn. i pl. 13 fig. 2.

Columba ænea, Linn. Syst. Nat. i. p. 283 (1766) Buff. Pl. Enl. 164.

Palumbus moluccensis. Briss. Orn. i p. 148.

Carpophaga sylvatica. Tickell, Jour. As. Soc. Bengal ii. p. 581, (1833.)

Bill without frontal process or knob, under coverts of the tail dark chesnut. Entire head neck and inferior parts light cinereous, more or less tinged with lilac (or vinaceous). Back, rump wings and tail fine metallic green, changing to golden and copper on the back and wings, and to blue on the tail. Under wing coverts light cinereous.

Founded by Linnæus on Brisson's description made from specimens in the cabinet of "M. l'Abbé Aubry," "caudam inferné tegentes castaneo-purpureæ" (Briss.) No mention made of knob at the base of the upper mandible, nor is it represented in Brisson's figure.

Ten specimens in Coll. Acad. from Java, Borneo, "Moluccas," and "India."

2. CARPOPHAGA ROSACEA, (Temm.) Pl. col. 578, Knip and Prev. Pigeons, iii. pl. 34.

Columba rosacea, Temm. Pl. col. iv. p. (liv. 96.)

Bill without frontal knob, under tail coverts dark chesnut, tail uniform metallic green. Head and entire under parts very light cinereous with a pale purplish or rosaceus tinge, especially on the head above. Upper parts dark cinereous with a green metallic lustre.

Nearly allied to *C. ænea*. One specimen in Coll. Acad. from Timor.

3. CARPOPHAGA RUFINUCHALIS, nobis.

No frontal knob, under tail coverts chesnut, tail uniform dark metallic green. About the size of *C. ænea*, and *C. rosacea*. Bill moderate, rather slender, without frontal protuberance, wing moderate, second quill longest, legs moderate or rather long, the upper half of the tarsus feathered, toes rather long, padded and flattened on their under surfaces, hind toe with a row of bristles on each side of the central row of scales, claws strong curved.

Neck behind with a wide transverse well defined band of glossy chesnut, succeeded by a narrow band of dark bluish cinereous. Head above light bluish cinereous, entire under parts light purplish cinereous (or vinaceous), nearly white on the throat and darker on the abdomen. Under coverts of the tail dark rufous chesnut. Back, upper wing coverts, secondaries, rump, upper tail coverts and tail above brilliant metallic green with golden and copper colored reflections. Primaries brownish black with a faint tinge of green. Inferior coverts of the wings pale cinereous. Bill and feet light colored.

Dimensions.—Total length (of skin) about 14½ inches, wing 9, tail 5½ inches.

Hab.—Unknown; spec. in Mus. Acad. Philada.

Obs.—One specimen only of this bird is in the collection of the Academy, and is from the Rivoli collection. It bears some resemblance to the species regarded by me a *C. ænea*, and in a measure resembles the figure given as the female of that bird in Knip and Prevost's Pigeons, ii. pl. 4. It resembles also to some extent *C. rosacea*, (Temm). The large and well defined nuchal band distinguishes the present species from those mentioned and from all others that have come under my notice.

4. CARPOPHAGA PICKERINGII, nobis.

No frontal knob, under tail coverts light cinereous, tail above dark metallic green. About the size of the preceding. Bill moderate, rather slender (without frontal protuberance), wing moderate, second and third quills longest and nearly equal, tail rather long, containing fourteen feathers, legs moderate, upper half of the tarsus feathered, lower half presenting in front about three wide transverse scales, claws strong, flattened laterally, curved.

Under coverts of the tail light cinereous. Entire head and neck and under parts light purplish cinereous, darker and with the purple most distinct on the top of the head, the breast and abdomen, the cinereous mingling gradually with the darker color of the back, which with the rump, wings and tail are dark ashy brown with a green metallic lustre most brilliant on the tail. Under wing coverts light cinereous, under surface of the tail light glaucous cinereous. Bill (in dried skin) light ashy blue, feet light.

Dimensions.—Total length (of skin) about 15½ inches, wing 9½, tail 9½ inches.

Hab.—Mangsi, Sooloo Islands, spec. in coll. Ex. Exp.

Obs.—This Pigeon belongs to the same group as *C. ænea*; it differs in being rather larger, in having the wings and tail longer, and in having the under tail coverts light cinereous instead of dark chesnut. From *C. lacernulata* and *C. badia* it differs in having the tail uniform dark metallic green, with no terminal bar as in those species. It also somewhat resembles *C. cineracea*, but differs in having longer wings and in having the head above and neck behind light cinereous instead of dark cinereous.

The only specimens of this species that we have seen are in the fine ornithological collection made by the U. S. Exploring Expedition, (Vincennes and Peacock) now in the National Museum, Washington city.

I dedicate this bird, as a slight testimony of respect, to Charles Pickering, M. D., one of the Naturalists of the Exploring Expedition, who, in addition to the materials for his valuable volumes, has, in his manuscript notes, now in my possession, made important contributions to Ornithology.

5. CARPOPHAGA CINERACEA, (Temm.) Pl. col. 563.
Columba cineracea, Temm. Pl. col. iv. p. (liv. 95).
No frontal knob, under tail coverts light tawny, tail uniform ashy black.
Head above and entire upper parts cinereous brown, under parts vinaceous, darker on the breast and lighter on the abdomen and ventral region.
Perhaps not of this genus. Two spec. in coll. Acad. from Timor.

9. CARPOPHAGA BADIA, (Raffles,) Temm. Pl. col. 165, Knip and Prev. Pig. iii. pl. 37.
Columba badia, Raff. Linn. Trans. xiii. p. 317, (1822).
Columba capistrata, Temm. Pl. col. iv. p. (liv. 26, about 1824).
Ducula insignis, Hodgson, As. Res. xix. p. 162 (1836).
Carpophaga cuprea. Jerdon, Madr. Jour. 1840 p. 12
No frontal knob, under tail coverts light tawny, tail ashy black, widely tipped with (or with its terminal one fourth) light cinereous. Head above pale cinereous, throat white, neck behind and under parts light vinaceous. Back, rump, and wing coverts dark ashy brown, in many specimens tinged with rufous chesnut (or bay). Under wing coverts dark cinereous.
Five specimens in Coll. Acad. from India.

7. CARPOPHAGA LACERNULATA, (Temm.) Pl. col. 164.
Columba lacernulata. Temm. Pl. col. iv. p. (liv. 28).
No frontal knob, under tail coverts dark chesnut, tail ashy black, widely tipped with light cinereous (or with its terminal one fourth, light ashy). Head above cinereous, throat rufous, under parts light vinaceous. Upper parts dark ashy brown, with a faint green lustre.
Allied to the species immediately preceding. Two spec. in Coll. Acad. from Java.

8. CARPOPHAGA OCEANICA, (Lesson), Voy. Coquille, pl. 41, Knip and Prev. iii pl. 24.
Columba oceanica, Lesson, Voy. Coquille, Zool. i. p. 708 (1826).
Columba pacifica, Gm. Syst. Nat. i. p. 777 (1788) ?
With a frontal knob, lower part of the abdomen, tibiæ, ventral region and under tail coverts bright rufous. Throat white, head above, neck and breast cinereous, darker on the former. Upper parts of the body, wings and tail dark metallic green, under wing coverts dark brownish cinereous.
A distinct and well marked species. One spec. in Coll. Acad.

9. CARPOPHAGA GLORICERA, Forst. Desc. An. p. 166, (1844).
Male with a large frontal knob, under tail coverts chesnut, tail dark metallic green. Head above and neck behind light ashy, nearly white at the base of the bill. Entire under parts dark vinaceous, upper parts of the body, wings and tail dark metallic green, under wing coverts brownish black. Female without frontal knob, and with all the colors paler.
Quite distinct from the preceding (*C. oceanica*), and from all other species known to me. Well described by Forster as cited above. Of this remarkable species two specimens are in the collection of the U. S. Exp. Exp., Vincennes and Peacock.

10. CARPOPHAGA LATHAMI, Peale, Zool. U. S. Ex. Exp. Vincennes, Birds p. 200, (first edition, 1848).
No frontal knob, under tail coverts tawny, tail above dark glossy liver brown. Head, neck, and entire under parts dark vinaceous, more clearly ashy on the neck behind, upper parts of the body and wings dark ashy brown, under wing coverts and inner edges of quills bright rufous.
Of this fine species one specimen is in the collection of the Academy and is labelled as from New Guinea. Two specimens in the collection of the Ex. Exp. are from the Feejee Islands. It apparently is allied to *Columba Mayeri*, Prevost, (Pigeons iii. pl. 60).

11. CARPOPHAGA PERSPICILLATA, (Temm.) Pl. col. 246.
Columba perspicillata, Temm., Pl. col. iv. p. (liv. 42).
Columba myristicivora, Scopoli, Flor. et Faun. Insub. p. 94? Sonn. Voy. iii. pl. 102?
No frontal knob, but with the membranes of the nostrils large, under tail coverts light ashy, slightly tinged with rufous. With a frontal band of white and a ring of white around the eye, head above and neck dark ashy brown, paler on the neck in front, under parts ashy white. Upper parts of the body and wings dark metallic green.
Two specimens in Coll. Acad. labelled in Europe as from the "Moluccas." It is quite probable that this is the *Columba myristicivora*, Scopoli, and that the large membrane of the nostril is intended to be represented in Sonnerat's plate.

12. CARPOPHAGA AURORÆ, Peale, Zool. U. S. Ex. Exp., Vincennes, p. 201, (first edition, 1848).
With a large frontal knob, under tail coverts dark plumbeous glossed with metallic green, tail above uniform dark metallic blue. Head, neck and under parts of the body light cinereous, nearly white on the former. Upper parts of the body and wings dark metallic blue, changing to green in some lights, under wing coverts dark lead color.
This handsome bird is allied to the preceding (*C. perspicillata*,) but is quite distinct. Several specimens in the Coll. Ex. Exp. are from the Society Islands.

13. CARPOPHAGA PINON, (Quoy and Gaimard), Voy. Uranie, Ois. pl. 28.
Columba pinon, Quoy and Gaim. Voy. Uranie, Zool. i. p. 118, (1824).
No frontal knob, large bare space around the eye, abdomen and under tail coverts maronne, tail ashy black with a white subterminal band. Head above, back, rump and wings light cinereous, scapulars black. Neck before and behind and breast light vinaceous. Bare space around the eye encircled with white.
One specimen in the Coll. Acad. without label indicating locality.

14. CARPOPHAGA WILKESII, Peale, Zool. U. S. Ex. Exp., Vincennes, p. 203, (first edition, 1848).
Columba Forsteri, Wagler, Isis, 1829, p. 739.
Bill with a frontal elevation, under tail coverts dark plumbeous, glossed with metallic green, tail uniform dark metallic green changing to blue. Head, neck, and entire under parts dark plumbeous, nearly black on the former, upper parts of the body and wings dark metallic green changing to blue in some lights, under wing coverts dark metallic green.
We regard it as possible that this fine species may be the same as named by Wagler as above and described by Forster in Des. An. as a variety of his *C. globicera*. The under tail coverts are represented by both these authors as ferrugineous, which is not the case in the present bird, and there are other differences, especially the greater size of the species now before us.
Two specimens in the Coll. Ex. Exp. are from Tahiti.

15. CARPOPHAGA LEPIDA, nobis. Voy. Uranie, Atlas Zool. Ois. pl. 29?
Bill with a large frontal protuberance which includes the apertures of the nostrils; wing moderate, second quill longest; tail rather short, composed of twelve feathers, under tail coverts nearly as long as the tail. Legs short; tarsus feathered for half its length, thick; toes rather long, padded and flattened on their under surfaces; claws strong, curved.
Frontal protuberances (at the base of the upper mandible) yellow. Entire head, neck, breast and abdomen light purplish cinereous, (or light vinaceous,) changing to light cinereous on the back of the neck, where it joins the color of the back, and becoming darker and clearer vinaceous on the breast and abdomen. Back, upper wing coverts, secondary quills, rump and upper tail coverts brilliant metallic green, with golden and copper colored reflections. Primary quills and tail feathers brilliant metallic blue, the outer edges of the former and both edges of the latter changing to green. Ventral region, under tail coverts

and tibiæ reddish chestnut color: short feathers of the tarsi cinereous. Inferior coverts of the wing light cinereous. Bill dark; feet light?

Dimensions.—Total length (of skin) about 15½ inches; wing 8¼; tail 5 inches.

Hab.—Northern Australia? Specimen in Mus. Acad. Philada.

Obs.—The only specimen of this splendid bird that we have ever seen is that above described, and which is one of the many highly valuable contributions to the Museum of the Academy, made by Mr. Edward Wilson. It was obtained by him in Europe, and bears a label only indicating the locality, as we have given it above. It may be the species figured in Voy. Uranie, and regarded by Quoy and Gaimard as *Carpophaga ænea*.

16. CARPOPHAGA NOVÆZEALANDIÆ, (Gmelin.) Knip and Prev. Pig. ii. pl. 1.

Columba novæ zealandiæ, Gm. Syst. Nat. i. p. 773 (1788.)

Columba zealandica et spadicea, Lath. Ind. Orn. ii. p. 603 and Supp. p. 60.

Columba argetræa, Forst. Desc. An. p. 80, (1844.)

No frontal knob: head, neck, breast and upper parts of the body, wings and tail, beautiful metallic green, changing to golden and cupreous in some lights. Under parts of the body and under tail and wing coverts white, the latter (under wing coverts) tinged with ashy.

Numerous specimens of this magnificent Pigeon are in the Coll. Acad., from various localities. I can detect no specific difference between those from New Zealand and from elsewhere.

17. CARPOPHAGA FORSTERII, (Prevost.) Knip and Prevost's Pigeons, iii. pl. 47.

Columba Forsterii, Prevost. Knip and Prevost's Pigeons, iii. p. 87 (1834?)

Carpophaga poliocephala. G. R. Gray, Genera of Birds, ii. pl. 119?

Head ashy white, paler on the throat; under tail coverts chestnut. Entire upper parts, neck before and breast, fine metallic green, changing to golden and cupreous on the neck behind and back; abdomen white tinged with rufous; tail above metallic green, with a wide transverse band of ashy white.

Of this splendid species I have doubts respecting the correct name, *Columba Forsterii* having been previously applied to other birds of this family. It is, however, very probably *Carpophaga poliocephala*, as cited above.

Two specimens in the Coll. Acad. are from the Celebes.

18. CARPOPHAGA MAGNIFICA (Temm.) Pl. Col. 163. Knip and Prev. Pig. iii. pl. 25. Gould B. of Aust. v. pl. 58.

Columba magnifica, Temm. Linn. Trans. xiii. p. 125.

Head pale cinereous; entire upper parts of the body, wings and tail green, tinged with yellow on the back; greater wing coverts with large spots of yellow, wide medial portion of the under parts fine dark purple; ventral region and under tail coverts dark gamboge yellow. Under wing coverts yellow.

Numerous specimens of this beautiful species are in the Coll. Acad. and of the Ex. Exp., all of which are from Australia.

19. CARPOPHAGA PUELLA, (Lesson.) Knip and Prev. Pigeons, iii. pl. 1.

Columba puella, Less. Bullet. Sci. Nat. 1827, p. 400. Voy. Coquille Zool. i. p. 711.

Carpophaga assimilis, Gould. Proc. Zool. Soc. London, 1850, p. 201.

Similar to the preceding (*C. magnifica*) in colors, but is much smaller in size. Head not so clear cinereous; back less tinged with yellow.

Numerous specimens from Australia are in the Coll. Acad.

20. CARPOPHAGA LUCTUOSA, (Temm.) Pl. Col. 247. Gould B. of Aust. v. pl. 60. Knip and Prev. Pig. iii. pl. 40.

Columba luctuosa, Temm. Pl. Col. iv. p. (liv. 42.)

No frontal knob. Entire plumage of the head and body white, in some specimens with a faint yellowish cast. Tail white, with a wide terminal band of black tinged with ashy; quills ashy black, lighter on the secondaries, which are edged with pure black; tertiaries ashy black. Plumage of the ventral region tipped with black.

Numerous specimens in Coll. Acad. from Australia.

21. CARPOPHAGA BICOLOR, (Scopoli.) Sonnerat's Voy. iii. pl. 103. Knip and Prev. fig. ii. pl. 7.
Columba bicolor, Scop. Flor. et Faun. Insub. ii. p. 94 (1786.)
Columba alba, Gm. Syst. Nat. i. p. 780 (1788.)
Columba littoralis, Temm. Hist. Nat. Pigeons, p. 7.
Carpophaga casta, Peale. Zool. U. S. Ex. Exp. Vincennes, Birds, p. 204 (first edition, 1848.)
No frontal knob. Entire plumage of the head and body white. Tail white, with a wide terminal band of black; primary and secondary quills black, faintly tinged with ashy; tertiaries white. Resembles the preceding, but is rather smaller and without the black markings on the ventral region.
Of this beautiful bird several specimens are in the Coll. Acad. and are labelled as from Ambrina. One specimen in Coll. Ex. Exp. is from the Sooloo Islands.

22. CARPOPHAGA NORFOLCIENSIS (Lath.) Temm. Pl. Col. 186. Gould B. of Aust. v. pl. 59.
Columba norfolciensis, Lath. Ind. Orn. Supp. p. 60.
Columba leucomela, Temm. Pl. Col. iv. p. (liv. 32.) Knip and Prev. Pig. iii. pl. 28.
No frontal knob, but with the membranes of the nostrils large. Head, neck and wide medial portion of the under parts white, in many specimens tinged with dull yellowish. Upper parts of the body, wings and tail brownish black, tinged ashy; plumage of the back, rump, upper tail coverts and upper wing coverts tipped with metallic purple; sides, flanks and under tail coverts dark cinereous mixed with dull yellowish. Other specimens, apparently young, with the head, neck and under parts mixed with light brown, which predominates on the abdomen.
Numerous specimens in Coll. Acad. from Australia.
There are in the collection of the Academy various other species that have been included in the genus *Carpophaga* by authors, but the above are those only of which I have seen specimens, and which appear properly to belong to it.
Columba gularis, Quoy and Gaim. Voy. Astrolabe, Ois pl. 29, which is in the Coll. Acad., is a *Ptilinopus*. *Columba vitiensis*, of the same authors, Voy. Ast. Ois. pl. 28, of which the adult is in the Coll. Acad., (the young bird being represented in the plate in Voy. Ast.) is more properly a true *Columba*.
In the above list I have stated the presence or absence of the frontal knob or protuberance, which appears to be characteristic of some species, but not without suspicion that its presence, or at least its size, may depend on season, and may then be sexual only and confined to the male birds. It has to me much the appearance of an appendage indicative of the season of courtship, and its true value as a character is an interesting problem.
The species above alluded to, of which the specimens are in the collection of the Exploring Expedition, will be figured in the Atlas to the volume on the Quadrupeds and Birds of that Expedition, which I am preparing, and which will be published during the ensuing year.

Herrerite, identical with Smithsonite.

By Dr. F. A. GENTH.

When Herrera described an apple green mineral from Albarradon in Mexico, having a distinct cleavage parallel with the planes of a rhombohedron, as a combination of 55 58 p. c. of tellurium, 12.32 p. c. of sesquioxide of nickel and 31.86 op. of carbonic acid, all mineralogists, who were conversant with the laws of chemical combination, considered it as nothing more than a mechanical mixture, though the description appears to have been that of a simple substance. Afterwards, Del Rio pronounced it "carbonate of zinc, with some nickel and cobalt," and this being a very probable composition, which also answers very well to the physical properties, it was generally considered a Smithsonite, though,

(no other examination having been made of it,) as doubtful. I received, through the kindness of Dr. J. L. Le Conte, a genuine and perfectly pure piece of the mineral, which I have carefully examined. The physical properties of it agree very well with those given by Herrera; with regard to its chemical composition, Herrera has the merit of having correctly discovered in it the presence of carbonic acid; Del Rio, that of having found in it the oxide of zinc. With regard to the other constituents, both were mistaken. A qualitative analysis has shown that this mineral contains carbonic acid, oxide of zinc, oxide of copper, oxide of manganese, magnesia and lime, but no traces of any other substance. The quantitative analysis was made with the usual methods.

B. B. in a tube it blackens and does not give any "sublimate, which condenses in transparent drops," (as Herrera stated,) but none at all. Upon charcoal in the R. F. it blackens, and covers it with white incrustations, having a steel-blue margin, which are yellow as long as hot; and which, when moistened with cobalt solution and re-heated, become green. The mineral itself does not become green, but brownish black; and after having received a good reducing heat, it shows under the magnifier, and when powdered in an agate mortar, metallic copper. With borax, it gives distinctly the copper reactions. Dissolves in acids slowly, with effervescence. After weighing, I have carefully examined all the separated substances for their purity, but neither traces of tellurium, nor those of cobalt and nickel, could be detected.

0.6226 grs. of the mineral gave:

0.3783 grs.	of oxide of zinc, or . . .	60.76 p. c.	Zn O;
0.0137 "	" oxide of copper, or . .	2.20 "	Cu O;
0.0062 "	" protosesquioxide of manganese, or	0.93 "	Mn O;
0.0025 "	" pyrophosphate of magnesia, or	0.14 "	Mg O;
0.0092 "	" carbonate of lime, or . .	0.83 "	Ca O.

Herrerite is, therefore, nothing else but a cupreous Smithsonite, and its composition the following:

Carbonate of	zinc, ...	= 93.74	per cent.
"	" copper, ...	= 3.42	"
"	" manganese, ...	= 1.50	"
"	" magnesia, ...	= 0.29	"
"	" lime, ...	= 1.48	"
		100.43	

Chemical Notices.

By CHARLES M. WETHERILL, Ph. D., M. D.

On the occurrence of Gold near Reading.—In a paper upon the occurrence of gold in Pennsylvania, read before the American Philosophical Society, and published in vol. x. of their Transactions, I alluded to an auriferous quartz in the neighborhood of Reading, Pa., and the examination of which afforded me slight, though uncertain traces of gold. I stated at the close of the article, that "I had no doubt that a more careful examination of the rocks in the vicinity, would yield affirmative results in an examination for this metal." The views then expressed have proved to be correct. Last summer, Mr. Philippe, a mining geologist, in searching for iron ore on the farm of Mr. Entlich, a few miles eastward from Reading, and of Mr. Jonathan Deininger, about a mile from the same place on the western slope of Penn's Mount, detected gold by washing specimens of the ferruginous quartz. I called upon Mr. Deininger, who showed me the specimens in his possession, and gave me some of the quartz rock from his farm. Mr. Deininger showed me a specimen of gold, in weight I should judge between one and five centigrammes, which was broken by himself out of the rock.

I have noticed this quartz scattered over the ground in various parts of Berks county, some specimens bearing very strong gold characteristics; they are partially water worn, but the angles are moderately sharp; on breaking them open the enclosed masses of dark oxide of iron are apparent.

At the angle formed by the intersection of 8th and 9th streets, Reading, there is a heap of stones gathered from the adjoining fields, containing about two per cent. of pieces of this quartz rock; I brought home specimens with me for examination. These specimens, together with those obtained from Mr. Deininger's field by myself, were pulverized and washed, but without, in any instance, detecting gold. They were then smelted with litharge and charcoal, and the button of lead cupelled. Of course, the litharge was examined for gold. The 30 gramme button of lead from about 100 of litharge gave a silver button of 0.00575 grms., and which contained no gold.

A. 8th street quartz—65 grammes + 130 litharge + 10 black flux gave a lead button of 14 grms., and silver 0.0075, which contained gold beyond a doubt, as judged from its lustre and resistance to nitric acid.

B. Another portion of quartz from the same locality—200 grms + 400 litharge + 0.5 charcoal dust, gave lead 17 grms.; silver 0.00875 containing gold, though not as distinctly as the last.

C. Quartz from Mr. Deininger's fields—185 grms. + 370 litharge + 0.5 charcoal gave 20 grms. of lead containing 0.00825 silver, in which no gold could be detected.

On the Incineration of Filters in Analysis.—In order to burn off the filters from certain precipitates in quantitative analysis, considerable patience is required and loss of time involved, owing to the presence of salts in the pores of the filter. Fresenius, in his last edition of Quantitative Analysis, counsels patience in such cases, and to facilitate the combustion by pressing the filter against the hot crucible by a platinum wire. I have found it advantageous, in such cases, to use oxygen gas, as is done in some of the methods for preparing ashes of plants for analysis. The results are good, and none of the contents of the crucible are lost. The phosphate of magnesia-ammonia filter is thus burned off in quite a short time, and without any loss of phosphoric acid. After the filter is carbonized, the lid is partially removed from the upright crucible, and a tube (platinum I use, but glass will do nearly as well,) with an orifice of one mm. in diameter, delivers oxygen gas from a small vulcanized caoutchouc bag, so slowly that it mingles with the air in the crucible and effects the combination quietly. A crucible appears to be in the worst position possible for oxidation in the manner in which it is situated in the flame, for the rising air currents are unfavorable for combustion in the bottom of the crucible, and the air which does enter is diluted with the products of combustion. Though this may be partially improved by an inclined position of the crucible and lid, it is not obviated, and oxygen gas seems to afford a remedy with less risk than nitrate of ammonia.* I have not yet found any objection to its use from practice, and pure oxygen is so readily obtained from the commercial chlorate of potassa by using the wash bottles described in my article on "organic analysis by gas," and keeps so well in vulcanized caoutchouc bags that I would recommend it to a trial.

Apparatus for the Analysis of Carbonates.—Both in Fresenius' late edition of Analysis and in Rose's greater work are described apparatus for the determination of carbonic acid by Fresenius' and Wills' process, using fine balances. About a year and a half ago I described, in the Journal of the Franklin Institute, a very convenient apparatus for this purpose, which as it appears not to have come to the notice of chemists generally, and as those of my chemical friends who have tried it have approved of it, I will here shortly describe.

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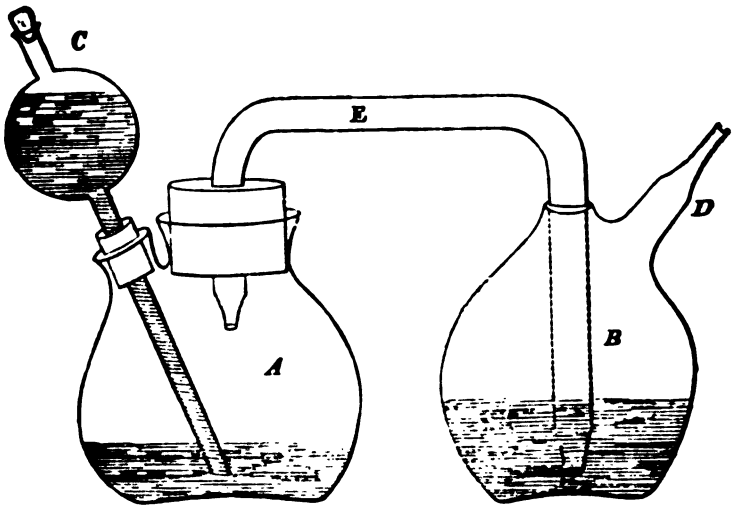
* Schultze (Fresenius' Anal.) proposes to burn filters and plant ashes by creating an air current over the crucible by means of a broken retort neck.

† Franklin Inst. Jour., Aug., 1854, page 107.



The accompanying figure, which is of the natural size, will explain itself; the part E B D is the drying apparatus, containing sulphuric acid and is of one piece, the tube E being melted into the flask B. In making this part of the apparatus I think it preferable to join E to A before blowing the bulb. The apparatus which I made myself in this way, and with which I experimented, remained sound, while of a dozen made by a professional gentleman, joining E and B after the bulb was blown, six cracked at the joint. The carbonate is placed in A with water, and C, with a wax stopper, contains hydrochloric acid in case of insoluble sulphates, or is empty when the oil of vitriol of B is employed to effect the decomposition. The tightness of the joints is ascertained and the analysis carried on as in Fresenius and Wills' apparatus. The lead glass apparatus which I constructed myself weighed, empty, 36 grammes, and when charged for analysis and with much sulphuric acid weighed, together with the chloride of calcium tube-hook of Oertling's balance which it fits, between 50 and 60 grammes. An apparatus of German glass, made by a glass blower, weighed, with its cork and empty, 20 grms. This apparatus unites lightness with great strength, which is at once felt on handling the apparatus, which arises from the nature of the joint of E with B, and from the construction of the decomposition flask A which allows E to be made of a piece of stout tube. In its construction it is simpler than any that I have seen, not excepting Geissler's (Jour. f. pr., ch. LX., 35,) which has one more joint, and that a ground glass one. A being entirely separate may be washed and dried ready for a fresh analysis in a couple of minutes; the sulphuric acid in B will generally last for two analyses, and is very easily emptied and replenished. A small sucking tube with perforated cork fitting the capillary end of the tube D, is used to bring acid on the carbonate, to draw air through at the close of the analysis, and to fill and empty B with oil of vitriol. The joints are the firmest possible in this apparatus, and the connections easily made, owing to single tubes passing through the two corks, which corks being very small may readily be obtained of perfect quality. I have not found any error to arise from the hygroscopic nature of the corks; but if such be feared, it is easy to coat their outsides with sealing wax varnish. The following are the experimental results with the apparatus:

About one gramme of perfectly pure (tested) carbonate of soda yielded, in

two experiments, a per centage of carbonic acid 41.42 and 41.35, which differ 0.07 from each other, and the mean 41.38 differs 0.01 from the theoretical per centage 41.37, sodium being taken at 23.178.

Carbonate of lime, (precipitated commercial,) which contained sulphate and iron, gave the following results, the carbonic acid being evolved by nitric:

0.63025 and 0.61625 grammes gave a per centage of carbonic acid = 41.65 and 41.70, difference 0.05. The theory for *pure* carbonate of lime requires 43.88.

In order to ascertain the error by evolving the carbonic acid from lime by sulphuric acid, two more experiments gave 38.79 and 39.17 carbonic acid.

In order to ascertain whether the carbonic acid remaining in the flask A could be expelled with a *moderate* boiling and thus obviate the necessity of the air tube C, three analyses were made with pure carbonate of soda (the same used as above) which gave the following results: 0.83, 0.859 and 1.0193 grammes gave a per centage of carbonic acid 40.93, 40.34 and 40.49.

Rectification of Mr. T. A. Conrad's "Synopsis of the Family of NAIADES *of North America," published in the "Proceedings of the Academy of Natural Sciences of Philadelphia, February*, 1853."

By ISAAC LEA.

On my return home a few weeks since from a long absence in Europe, I found, when looking over the Proceedings of the Academy, a new Synopsis of the North American Naïades by Mr. Conrad.*

Finding in it numerous errors in regard to the dates of my memoirs and the synonomy of my species, I desire that the correction of part at least of these errors may reach the scientific public by the same channel. I think it will be difficult for any one to understand how so many errors of dates, &c. could have been written down. I had hoped that the day had gone by among us here, when any other object than the true interests of science should have existed. It has been very painful for me to be called upon, as I am, to defend my scientific labors from an attempt to deprive me of much of that which I have won by patient labor and continued assiduity for so many years, and must protest against the recognition of the incorrect dates which I shall point out to the satisfaction, I trust, of every man of science who takes any interest in the study of this branch of Natural History.

I do not mean to correct the synonomy of this Synopsis, but I trust to satisfy every one, that it can be of no value whatever where the dates are so erroneously stated. For myself, I shall rest until I have further light on the synonomy of my Synopsis of this Family published in 1852, which I believe will be found in the main to be correct. It certainly was my intention to do justice to every naturalist, and whenever I shall be shown not to have done so I will most willingly make reparation.

Mr. Conrad commences his Synopsis by saying, "The present attempt to give a synonomy of the North American *Naïades*, has originated from the absence of dates and references in Mr. Lea's memoirs. To render strict justice to every author according to date of publication, is not only the duty of the naturalist, but a necessity of science." (Vol. 6, page 243.)

If it were true that my memoirs were without "dates and references," and the truism of the duty of naturalists to render justice was complied with by the author, there would have been no occasion for me to trouble the Academy with a rectification. He usually takes the date of the title of the *Volume* of the Transactions of the American Philosophical Society, where the species may have been described, while the volumes published by the Society, as they are almost universally by all scientific bodies, were really issued *in parts* at different times and generally in three parts. Thus when part first of any volume was issued, the Society distributed copies immediately to their subscribers and to all the principal socie-

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*Vol. 6, p. 243, Feb. 8, 1853.

ties in Europe and in this country; and, when I have had in such part† a memoir, I had two hundred and fifty copies printed for my own use, one hundred and fifty of which I at once distributed at home and abroad where I thought they might be useful to science. When part second of the same volume may have been printed, the same process took place, and when part third was ready, it took the same course, with this addition, viz. a title page for the *whole volume* was printed for the convenience of those who might choose to have their three parts bound into a volume, and this title bore the date of the last part. Thus most of these copies of my descriptions with figures, may have been in the hands of the Zoologists of Europe and America for two or three years prior to the date at which Mr. Conrad has stated them as being published. In addition, he usually pays no regard to the dates of my descriptions printed in the Proceedings of the American Philosophical Society or otherwise, prior to their subsequent issue in the Transactions. Thus on the 18th August, 1843, I read a number of descriptions before that Society and permission was granted to me to print them at once. The following day, Aug. 19th, these descriptions were printed and circulated. Now Mr. Conrad in his synopsis dates these as published in 1846!* three years after they were actually issued printed. The rule, however, which the author says he will adopt of taking the date of the whole volume, when the date of publication of each species cannot be otherwise obtained, is not always followed, for the date in the title page of Vol. 3d is 1830, while the following species described in this volume, *U. occidens*, *U. rubiginosus*, *U. multiradiatus*, and *U. asperis*, he dates in 1832, and *U. heterodon*,† in the same memoir, he dates 1833; thus species described and printed *in the same memoir*, are by him often dated in *different years*.

The question as to fixing with precision the date of discovery of a new form, has been one of anxiety and doubt among men of science. For myself I have never felt satisfied that it was judicious to make any change in the long received rule of permanently fixing the date of publication‡ to be that, when the paper was read before and deposited with the officers of a learned Society, with a view to printing. Receiving as authority the dates issued by individuals in publications is exceedingly dangerous. There may be antedates, and these can rarely be detected. In the case of a deposit of a paper with a learned society, intended for publication, and a record being made of it at the time, there cannot be any probability by collusion of the officers to make a change.

As much of Mr. Conrad's Synopsis involves the names and claims of Mr. Rafinesque, it becomes necessary to say something in explanation of my having in my papers adopted but few of his names. It has been asserted that I wished to deprive this unfortunate naturalist of the credit of his labors. This I must deny. I believe I was the very first writer who, coming into this field of inquiry, showed a desire to do him justice. When I commenced, in 1827, the series of papers which has grown since to many volumes, I did not find a single species credited to Rafinesque by Mr. Say or Mr. Barnes; but my friends, Dr. Griffith, Mr. Hyde, Mr. Peale, Dr. Green and Mr. Stewart, all my predecessors, thought they could recognise, probably, three or four of his species. In 1831, Professors Short and Eaton, of Transylvania Medical College, Lexington, published in the Transylvania Journal of Medicine a descriptive catalogue of the *Naiades* then known to them, having collected quantities of them in Kentucky, Ohio, &c. As Mr. Rafinesque had been a professor in the same college, they very naturally desired to give him all they could identify, and out of thirty-five species in their list, Mr. Rafinesque

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* These are *U. Bucklayi*, *U. Buddianus*, *U. minor*, *U. amygdalus*, *U. fuscatus* and *U. neglectus*.

† Read before the American Phil. Soc. Mar. 6th, 1829.

‡ Publication does not necessarily mean printing and issuing a notice of a fact or a discovery. Dr. Webster says, that publication is a "notification either by words, writing, or printing," and Johnson defines it "the act of notifying to the world."

has but six given to him, viz: *mytiloides*, *torulosus*, *metanever*, *torsus*, *triqueter* and *scalenius*, the first, fourth and sixth of which Mr. Conrad now rejects.*

I went to the task of examination with the sincerest desire of making out as many as possible of Rafinesque's species; and having his original work before me, went over it carefully four different times, but with nearly the same result as my predecessors. I gave it up in despair, and lost my labor; and I think I shall show further on, that Mr. Conrad himself affords the best evidence of the utter impossibility of satisfactorily fixing Mr. Rafinesque's species. It is now thirty-four years since he published his memoirs, and for nineteen years Mr. Conrad has had the advantage of having shells labelled by, he says, Mr. Rafinesque himself.† A single species, the *Unio triangularis* Raf. of Mr. Conrad's Synopsis of 1834, with its synonyms, will convince any unprejudiced person of the impossibility of the attempt made to establish Mr. Rafinesque's species.‡

Dr. Griffith, Mr. Hyde and Mr. Peale have often told me that Mr. Say would not listen for a moment to such an idea as giving any regard to his species, and the works of Mr. Say fully justify this fact by the total absence of any recognition of his authority for a single species, until some fourteen years after Mr. Rafinesque's publication, he was induced to make his "Synonymy of the Western, North American species of the genera Unio and Alasmodonta," recognising many of the species of Rafinesque, and denying to me a single one.

The feeling of the western conchologists was almost universally against the attempt to introduce Rafinesque's names, and most of those who had studied these shells, and written on them, or were writing on the subject, addressed me on the occasion, in utter despair of making them out.‖

The principal conchologists of Ohio, in April, 1836, agreed to form "a list to be adopted by western conchologists," and after consulting together on the subject, a manuscript list was sent to me by Judge Tappan, containing 112 species of *Unionea*, three only of which are given to Rafinesque. In August following, they more maturely considered the subject, and agreed to the nomenclature of a list in which a single species only is credited to him, and this with a mark of doubt.

In a letter to me from Prof. Kirtland when he undertook the Zoological portion of the Ohio State Survey, he says, "I am particularly pleased with your arrangement of the Naïades.⁋ It is altogether preferable to anything of the kind that has ever come before the scientific public, and will bear the test of the closest scrutiny and the severest criticism." * * * "I was unwilling to complete my report on our conchology until I could avail myself of the information which it contained. I shall adopt your names and arrangement with hardly an alteration." When this important State Report came out in 1838, in the whole list of nearly one hundred species of the family *Naïades*, there were but two accredited to Rafinesque, viz: *metanever* and *mytiloides*, the latter of which Mr. Conrad does not admit as a species in his Synopsis, but now declares it to be a synonym to *clavus* Lam.

Notwithstanding the decisions of the ablest of the western zoologists, there was still an attempt to substitute by "guessing," the names of Rafinesque. This induced

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*Mr. Poulson says in the preface of his translation, (Oct. 1831,) that but four of Rafinesque's species were "known by his names, either in the works of American authors or in our collections."

†This was done some twelve years after the descriptions were published, and at a time when I believe no one in any branch of science considered him as reliable authority. He had been, according to Dr. Binney, in a "diseased state of mind" for thirteen years. I believe no one pretends to say that the original specimens described by Rafinesque are in existence

‡See further on the numerous changes made by Mr. Conrad in the position of this name and its abandonment at last.

‖Dr. Kirtland, Mr. Buchanan, Dr. Ward. Dr. Hildreth, Judge Tappan, Mr. Clark and some others. See Asa Gray's account of Rafinesque's Botanical Writings, (Sill. Journ., 1841,) where he says that "half his genera and species do not exist at present," and that he described in "Natural History style, twelve new species of thunder and lightning."

⁋Alluding to my Synopsis of the family Naïades, 1836, first edition.

the members of the "Western Academy of Natural Sciences of Cincinnati," in January, 1849, to review the subject, with an intention of settling this matter of nomenclature. With that Society there could be no partialities, there could be no reason for favoritism, any more than with the Reporter of the State, or the other zoologists who had devoted so many years to the study of these interesting molluscs. They went to the task with no other object than to "render strict justice to every author." The result was published in a small work, "Catalogue of the *Unios, Alasmodontas, and Anodontas* of the Ohio river and its northern tributaries, adopted by the Western Academy of Natural Sciences of Cincinnati, January, 1849." There were admitted sixty-seven distinct species, of which *three* only are ascribed to Rafinesque, *U. flavus, U. flexuosus* and *U. nodulatus.**

If I had been singular in my inability to make out Rafinesque's species and to recognise him as authority, I should not, perhaps, have ventured alone, but the exception is on the other side. If we turn to the admirable work of the late Dr. Binney, on the "Terrestrial Molluscs of the United States," and there is not a more able and judicious writer on the subject, we find that he wholly discards Mr. Rafinesque as being worthy of any regard. He says that the papers of Rafinesque "are not deemed worthy of any consideration," (p. 36,) and further on he says that "his diseased state of mind was observed about 1818" (p. 44); and again at p. 48, he says, as the genera and species proposed by Rafinesque "are considered to be destitute of authority and entirely unworthy of notice, no mention of them will be made in the text." He was in the habit of naming and describing species which he never saw, as mentioned by Major LeConte, and a very remarkable case of this kind exists in his publication of his genus *Tremesia*, in the same paper with the *Naiades*. He described it as a *trivalve fresh water shell* living on the rocks, near the mouth of the Ohio, like the *Patellæ*. He described the animal and shell, and figured them (p. 54). But it is not pretended that he ever saw either, and I doubt if there be one zoologist in the United States who believes in the existence of the thing at all. In the American Monthly Magazine, Rafinesque, in a previous notice, describes it under the information of Mr. Audubon. He does not himself pretend to have seen it.

When I was in Paris, in 1832, Baron Ferussac told me that I was wrong in admitting a single species of Rafinesque's if I had any doubt myself about them. He was convinced himself that he could not identify with certainty a single species. In the Magazine de Zoologie, p. 13, he says that "he had received from him the same shells under different names, and others with the names evidently not those which were given to them in his Monography. Therefore there results inextricable difficulty for the determination of his species, to establish an exact synonymy between him and others, who since have occupied themselves with the mussels." It is true that the Baron subsequently made a catalogue in which he gave precedence to many of Rafinesque's names; but it must be remembered, that this was done under the impression that these were identified as the original specimens described by him, and not, as now understood to be the case, new labels to other specimens, some twelve or fourteen years afterwards. We have seen above that Ferussac could make nothing of the labelled specimens sent to him by Rafinesque, "marked by his own hand," which marking Mr. Conrad assumes as definite, while in reality I do not think them entitled to the least consideration.

*Stronger evidence could not be presented of the futility of the efforts made by naturalists to give Rafinesque what they could by careful examination. The earlier conchologists thought they could make out four of his species, *torsus, mytiloides, metanever* and *scalenius*. Professors Short and Eaton gave him *mytiloides, torulosus, metanever, torsus, triqueter* and *scalenius*. Judge Tappan, with the best disposition, gave him, *metanever, verucosus* and *tuberculatus*, but all with doubt. In the list made by the western conchologists there is but one, *U viridis*, the description of which Judge Tappan says equally well applies to *iris*. In Dr. Kirtland's State Report, he accredits two to Rafinesque, *metanever* and *mytiloides*, and the Western Academy of Natural Sciences give him only *flavus, flexuosus* and *nodulatus*, not one of which is given to him by the other authorities above quoted. Could anything, therefore, be more uncertain?

Many years ago the distinguished zoologist, Mr. Swainson, sent to me from London, for the purpose of identification, a number of *Uniones*, which he had received from Rafinesque, but of which he could make nothing. The confusion of pieces of valves and names formed such a mass as utterly to defy any attempt at recognition of his species. I returned them, totally unable to identify them with any satisfaction. Dr. Ward said that Rafinesque's descriptions and outline "would equally well apply to six or eight different species." These facts fully account for the difference of judgment between Mr. Say and Mr. Conrad in their Synopses, both published in this city, dated April 1834. Even they with the specimens before them marked by Rafinesque himself, could not agree in very many cases. Mr. Say considered that *castaneus*, Lea, was *lævigatus*, Raf., while Mr. Conrad placed *lens*, Lea, as a synonym to *lævigatus*. Mr. Say makes *zigzag*, Lea, and *donaciformis*, Lea, synonyms to *nervosus*, Raf., while Mr. Conrad doubts that *zigzag* is synonymous with *nervosus*, and makes *donaciformis* synonymous with *truncatus*, Raf., which (*donaciformis*) in his appendix, the next year, he considers a *distinct species*, but which in the new synopsis of 1853 he placed with *zigzag*, as synonymous with *nervosus*, Raf.!

Without going further into long statements of discrepancies between Mr. Say and Mr. Conrad in regard to establishing Rafinesque's species, it will be enough to say that in the Synopsis of Mr. Say it will be found that out of sixty-one descriptions by Rafinesque he gives him thirty-eight species, and by comparing these with the new Synopsis of Mr. Conrad, eighteen of them are more or less different in their synonymy, or are entirely dismissed from the list of species.*

Not wishing to devote too much time or space to tracing out the changes of of opinion by Mr. Conrad from time to time in attempting to substantiate Rafinesque's species, it will be sufficient to trace a single one through the various sinuosities which he has carried it to this period. I do not know how many there may be like it, but I think it ought to be sufficient to satisfy any one, that synonyms based on such uncertain authority ought to be most carefully scrutinized.

The "synoptical table of the species of American Naïades with Synonyms," April 1834, was got up by Mr. Conrad with a view, he says, to "rectify the confused nomenclature of American Naïades." How successfully this has been carried out may be seen by tracing this only one which I have attempted to follow entirely through with its connections. In the list of species (p 72) Mr. Conrad sets down *U. triangularis*, Raf. as an established species, and adds as synonyms *lateralis* Raf., *sintozia* Raf., *pachostea* Raf., *mytiloides* Raf., *ruber* Raf. and *pyramidatus* Lea. Eighteen months afterwards, this "retification of confused nomenclature, was found to require itself a rectification, and we find in an appendix dated Oct. 1835, under the caption of additions to and corrections of, the catalogue of species of American Naïades," that *ruber* Raf. *is not* a synonym to *triangularis*, but really a species, and that *pyramidatus* Lea, is a synonym to it; also, that *pachostea* Raf. was erroneously placed as a synonym to *triangularis* Raf., it too becomes a type, and *Cooperianus* Lea, is assigned as a synonym to it. *Mytiloides* likewise is no longer a synonym to *triangularis*, but it becomes one to *clavus* Lam. The other three are as yet still considered synonyms to the type *triangula-*

*It might be better to cite a few of those to show at a glance, how much discrepancy of opinion there is between Mr. Say and Mr. Conrad, and to show how dangerous it is to science to admit such "guessing" where nothing should be set down as certain that could not bear the test of scrutiny.

Unio niger Raf.	Mr. Say says is			cuneatus Bar.,	Mr. Conrad says it is				incrassatus Lea.
" fasciolus Raf.	"	"	"	multiradiatus Lea.	"	"	"	"	subangulatus Lea.
" flexuosus Raf.	"	"	"	pileus Lea.	"	"	"	"	foliatus Hild.
" obovalis Raf.	"	"	"	ebenus Lea.	"	"	"	"	solidus Lea.
" subrotundus Raf.	"	"		rotundatus Lam.	"	"	"	"	striatus Raf.
" triangularis Raf.	"	"		ellipsis Lea.	"	"	does not admit triangularis as a species.		
" cuneatus Raf.	"	"	"	patulus Lea.	"	"	"	"	" cuneatus as a species.
" gibbosus Raf.	"	"	"	perplexus Lea.	"	"	"	"	" gibbosus as a species.

" toruloosus Raf. is not admitted by Mr. Say as a species. Mr. Conrad says it is gibbosus Raf. and perplexus Lea.

ris Raf. But, in the following year, June 1836, in his "Monography of the Family *Unionidæ*" p. 41, Mr. Conrad describes and figures *mytiloides* Raf. as a type, and assigns to it as synonyms *ruber* Raf. *pyramidatus* Lea, and *cardiscos* "Say of Guéria," and in his observations on this shell, now first considered by him to be a species, he says, "this common species, since its first discovery in the Western waters, has always been known by the name we have adopted"!* After these three attempts one might reasonably conclude that the synonymy of *triangularis* was perfectly settled to the satisfaction of the author of the Synopsis, but such proved far from being the case. Seventeen years of further experience found Mr. Rafinesque's species "marked by his own hand," did not make his own species right, and we have in Mr. Conrad's Synopsis of 1853, a remodelling of these names of the most extraordinary kind. *Triangularis* which in 1834 was declared to be a type with six synonyms is *entirely dismissed*, not recognized even as a synonym. *Lateralis*, which then was pronounced to be a synonym to it, has also been dismissed. *Pachostes*, another of the synonyms, but which was in 1835 raised to the rank of a type, is sunk into the same oblivion. *Mytiloides* which had been in 1836 raised to a species, from a synonym in 1834 to *triangularis*, and in 1835 changed to a synonym to *clavus* Lam., is continued a synonym to *clavus*, with some entirely new companions, viz., *ecalenius* Raf. *cuneatus* Raf. and *mediolíformis* Say. We find *sintoxia* which had remained for nineteen years, during all the changes, a synonym to *triangularis* is now *decided to be a species*, and it assumes that rank without any synonym. *Ruber* is once more considered to be a species. It was in the Synopsis of 1834 pronounced to be a synonym to *triangularis* Raf. In 1835 it was considered a species, and *pyramidatus* Lea assigned as a synonym to it. In 1836 it was degraded to the rank of synonymy again, and had *mytiloides* Raf. for its type. In 1853 we find it again promoted to the rank of a species, with *pyramidatus* Lea, and *coccineus* Jay, as synonyms! And will it be believed, after all these various attempts to "rectify" what was pronounced with so much formality to be the object of the writer, and to "render strict justice to every author," that he says, in a supplementary note, on this *U. triangularis* Raf. in this Synopsis (p. 267) that "Mr. Poulson's cabinet contains no authentic specimen of this species, which is one I have never identified." What must we think of such an admission? In 1834 he forms a Synopsis under the declaration that he has at his command the specimens marked by Rafinesque himself. In this Synopsis he declares *triangularis* Raf. to be a species with six synonyms. Through the course of three years he separates from these synonyms three of them, which he raises to the rank of species, and then at the end of nineteen years, he drops the important type entirely, and candidly informs us in a note that it is a species he "had never identified!" and in the same note he says that "*pachostes*, *Cliffordianus* and *lateralis* are also uncertain species."

It will strengthen the evidence of the utter futility to attempt the establishment of Rafinesque's species, by looking at Mr. Say's Synopsis, which had the same object in view. He declares this *U. triangularis* Raf. to be a distinct species, and assigns to it as a synonym *U. elliptis* Lea.† and he pronounced *mytiloides* Raf. a species which Mr. Conrad at the same time placed as a synonym to *triangularis* Raf.‡

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* Subsequently it will be seen that this species is degraded in the synopsis of 1853 again into the ranks of synonymy. I believe I was the first to give it a place (1829) in the lists made to endeavor to throw light on the subject, and I continued it in the various editions of my Synopsis in 1836, 1838 and 1852, more because a certain triangular shell was generally known to us under this name of Rafinesque's, than that his description really fitted it.

† Mr. Say had previously, in his American Conchology 1831, considered *U. elliptis* Lea, as being established, and he had figured and described it as mine.

‡ If it were necessary to have further evidence of the uncertainty of Rafinesque's species, we might trace another of these numerous discrepancies, taking *ecalenius*. Mr. Conrad in his Synopsis 1834 gives *ecalenius* the rank of a species, giving as synonyms *cuneatus* Raf. and *patulus* Lea. In his appendix 1835 he makes *ecalenius* Raf. and *mediolíformis* Say. synonyms to *clavus* Lam. In 1838, Monography p. 92, he describes and figures *patulus* Lea., making it a distinct species, and in his Synopsis 1853 he adds *mytiloides* to the synonym of *clavus* Lam., having in 1836 considered *mytiloides* a distinct species, but he is still not sure that *cuneatus*

I shall be much surprised if the exposition of this species, *triangularis* Raf. will not satisfy all unprejudiced zoologists of the hopelessness of these attempts to establish Rafinesque's species of the *Naïades*.

We come now to by far the most important part of Mr. Conrad's Synopsis—the dates. He commences in the first line of his Synopsis, with the avowed purpose, in forming it, to supply an assumed "absence of dates and references in Mr. Lea's Memoirs," and he promises to "render strict justice" to every author according to date of publication. Any one unacquainted with my memoirs, would suppose from this that some at least were without dates; such is not the fact; every one of them running through a course of twenty-five years is dated. The record of their date is in the minute book of the American Philosophical Society and the record of the day on which they were read and deposited with the Society, for publication, is printed at the caption of every one of the numerous memoirs, put there by the officers of the Society. The day on which all these memoirs were issued printed, is not easily ascertained, and this gives Mr. Conrad a field for assigning to them erroneous dates, as we shall see in the sequel. It is a mere matter of figures, but it will be seen that many are wrongly put down in his Synopsis. During the first ten or twelve years that I was engaged in writing these memoirs, no one considered there could exist any doubt, as to an author being entitled to his discovery; if it was communicated to a learned Society, and really was a discovery. It being issued, printed, afterwards, was considered a diffusion of a knowledge of it. The Society then printed no "Proceedings" to give immediate notice of such discoveries abroad. It was not until in 1838 that the "Proceedings" were commenced. After this period it was generally thought best to print in the "Proceedings" the simple descriptions of the species in a memoir, and the whole, in extenso, was subsequently inserted in the Transactions.

Mr. Conrad has declared that he will not regard the date of the reading of any such described species, and acting under this principle he cuts out a large number of my names, classifying them among the synonyms. But he is by no means satisfied with this reduction. The date of a very large number is erroneous as to the time of their being actually printed and circulated, as I have mentioned in the first part of this paper, that is, by assuming the date of issuing the *first* part of a volume to be that, when the *last* part was issued, while the first part may have been circulated some years before.

In order to occupy as little space as possible, I will endeavor to tabulate these errors. To take up my species in the order in which they occur in his Synopsis and correct them, seriatim, would require great space. I commence with my first memoir in 1827, and proceed chronologically to 1852.

Unio lanceolatus Lea.	Dated by Mr. Conrad,	1832	Published in memoir read before and deposited with the Am. Phil. Soc., Nov. 2, 1827, and printed in Trans., Vol. 3, p. 259. Distributed early in 1828.‡ Noticed in Silliman's Jour. Oct. 1829, and the Trans. cited for 1827.
" irroratus Lea.*	" "	†1852	

Raf. is not distinct, as he says in a note that it may be a distinct species. Mr. Say in his Synopsis makes *scalenius* Raf. and *cuneatus* Raf. both distinct species.

*The four other species of this memoir are given by Mr. Conrad without any date.

†This may be a typographical error and intended to be 1832, the same as *lanceolatus* above it. Giving Mr. Conrad the benefit of this, it will still be found that he has dated these two species *five years* after they were read to the Society, *four years* after they were printed and issued, and *two years* after the date of the title page of the whole volume.

‡A correspondent in Cincinnati, under date of April 25th, 1828, acknowledges the receipt of this paper, and comments on the descriptions and the plates, and particularly the anatomical parts. He had received impressions of the plates in the previous December.

Unio occidens Lea.	Dated by	Mr. Conrad,	1832?	Published in memoir read before and deposited with the Am. P.S. March 6th, 1829, and printed in Trans. v. 3, p. 401. Distributed in May or June 1829. The receipt of it, with comments, is acknowledged in a letter from Cincinnati, June 27th, 1829, and it is noticed in Silliman's Journal, vol. 16 1829.
" rubiginosus Lea.	"	"	1832	
" heterodon Lea.	"	"	1833	
" multiradiatus Lea.	"	"	1832	
" securis Lea.	"	"	1832	
Unio acutissimus Lea.	Dated by	Mr. Conrad, Aug.	1834	Published in memoir read before and deposited with the Am. P.S. May 7th, 1830, and printed in Trans. v. 4, p. 63. Distributed in the latter end of 1831, and acknowledged by correspondents as received in that year. A long review of this, and the supplement read May 20, 1831, appeared in Silliman's Jour. for Jan. Feb. and March, 1832. It will be observed that Mr. Conrad makes *three dates* for the species described in this memoir, not one of which is correct on his own principle of the issue of printed copies being the time of date. This memoir and the following supplement having eighteen plates and nearly fifty species, all colored, required a long time to finish, hence the delay between reading the memoir and the issuing of it complete.
" asper Lea.	"	"	1832	
" pustulosus Lea.	"	"	1832	
" obesus Lea.	"	"	1832	
" castaneus Lea.	"	"	1832	
" varicosus Lea.	"	"	1832	
" Congaraeus Lea.	"	"	1832	
" decisus Lea.	"	"	1832	
" glans Lea.	"	"	1832	
" fabalis Lea.	"	"	1832	
" lens Lea.	"	"	1832	
" cuprinus Lea.	"	"	1834	
" pustulatus Lea.	"	"	1832	
" ebenus Lea.	"	"	1832	
" stapes Lea.	"	"	1832	
" trapezoides Lea.	"	"	1838	
Unio angulatus Lea.	Dated by	Mr. Conrad,	1832	Published in memoir (supplement) read before and deposited with the Am. Phil. Soc., May 20th, 1831, and printed in Trans. v. 4, p. 105. This supplement was issued with the memoir. Therefore all these dates of Mr. Conrad's are one year after the memoir was distributed.
" subovatus Lea.	"	"	1832	
" arcæformis Lea.	"	"	1832	
" pileus Lea.	"	"	1832	
" trigonus Lea.	"	"	1832	
" subrotundus Lea.	"	"	1832	

Unio globosus Lea.	Dated by Mr. Conrad,			1834
" capsæformis Lea.	"	"		1834
" Haysianus Lea.	"	"		1834
" Ravenelianus Lea.	"	"	Aug.	1834
" Schoolcraftensis Lea.	"	"	"	1834
" geometricus Lea.	"	"		1834
Anodonta plana Lea.	"	"	Aug.	1834
" incerta Lea.	"	"		1834

Published in memoir read before and deposited with the Am. Phil. Soc., March 16th, 1832, and printed in Trans., v. 5, p. 23. I was absent most of 1832 in Europe, and the large number of plates (19) with figures of 86 species, in this and the two following supplements, all colored, required much time, and it was not until some time in Aug. or Sep. 1834 that the whole was finished and issued printed.

Unio Conradicus Lea.	Dated by Mr. Conrad			1834
" Cooperianus Lea.	"	"		1834
" dromas Lea.	"	"		1834
" perdix Lea.	"	"		1834
" pictus Lea.	"	"		1834
" Sowerbyanus Lea.	"	"		1834
" Troostensis Lea.	"	"		1834

Supplement read before and deposited with the Am. Phil. Soc., March 15th, 1833, and printed in Trans. v. 5, p. 59. The same observations apply as to the preceding.

Unio fulvus Lea.	Dated by Mr. Conrad,			1834
" Shepardianus Lea.	"	"		1834
" confertus Lea.	"	"	Aug.	1834
" modioliformis Lea.	"	"		1834

Second supplement read before and deposited with the Am. Phil. Soc., Feb. 7th, 1834, and printed in Trans. v. 5, p. 95. The same observations apply as to the preceding.

Unio arctior Lea.	Dated by Mr. Conrad,			1838
" coccineus Lea.	"	"		1838
" Fisherianus Lea.	"	"		1838
" Hydianus Lea.	"	"		1838
" jejunus Lea.	"	"		1838
" interruptus Lea.	"	"		1838
" turgidus Lea.	"	"		*1837
" venustus Lea.	"	"		1838

Published in memoir read before and deposited with the Am. Phil. Soc., Dec. 19th, 1834, and printed in Trans. v. 6, p. 1. All these are inserted in the first edition of my Synopsis, issued in 1836, probably in Dec.

Unio Barnesianus Lea.	Dated by Mr. Conrad,			1838
" Cumberlandianus Lea.	"	"		1838
" folliculatus Lea.	"	"		1838
" glaber Lea.	"	"		1838
" Jayensis Lea.	"	"		1838
" Lecontianus Lea.	"	"		1838
" Muhlfeldianus Lea.	"	"		1838
" notatus Lea.	"	"		1838
" pumilis Lea.	"	"		1838
" Medellinus Lea.	"	"		1838
" Roanokensis Lea.	"	"		1838
" simus Lea.	"	"		1838
" Hopetonensis Lea.	"	"		1838
" Vanuxemensis Lea.	"	"		1838
" Zieglerianus Lea.	"	"		1838
Anodonta Wardiana Lea.	"	"		1838

Published in memoir read before and deposited with the Am. Phil. Soc., Feb. 5th, 1836, and printed in Trans. v. 6, p. 23. All these are inserted in the first edition of my Synopsis, issued in 1836, probably in Dec.

* I cannot understand why Mr. Conrad dates this one year prior to the other species in the same memoir. In his Synopsis he makes it a synonym to *Mortoni* Con., which he described in No 1 of his Monography, Dec. 1835.

Unio pliciferus Lea. Dated by Mr. Conrad,	1838	Published in Memoir read before and deposited with the Amer. Phil. Soc., July 15th, 1836, and printed in Trans. Vol. 6. Issued in Synopsis, 1836.
Margaritana arcula Lea. Dated by Mr. Conrad,	1838	Published in Memoir read before and deposited with the Amer. Phil. Soc., Aug. 19th, 1836, and printed in Trans. Vol. 6. Issued in Synopsis, 1836.
Unio discus Lea. Dated by Mr. Conrad,	1838	Published in Memoir read before and deposited with the Amer. Phil. Soc., Nov. 4th, 1836, and printed in Trans. Vol. 6. Issued in Synopsis, 1836.
" Dorfeuillianus Lea. Dated by Mr. Conrad,	1838	
" Menkeanus Lea. " "	1838	
Unio Rangianus Lea. Dated by Mr. Conrad,	1838	Published in Memoir read before and deposited with the Amer. Phil. Soc. July 21st, 1837, and printed in Trans. Vol. 6. Issued in Synopsis, 1836.
Unio amœnus Lea. Dated by Mr. Conrad,	1841	Published in Memoir read before and deposited with the Amer. Phil. Soc., Oct. 2d, 1840. Oct. 16th ordered to be printed. Issued in the Proceedings of that month, (No. 13, p. 285,) which was laid on the table by the Reporter, Nov. 6th, 1840. Printed in the Trans. Vol. 8, p. 191.
" biangulatus Lea. " "	1841	
" Bourianus Lea. " "	1841	
" Boydianus Lea. " "	1841	
" Cincinnatiensis Lea. Dated by Mr. Conrad,	1841	
" cuneolus Lea. " "	1842	
" dactylus Lea. " "	1841	
" dollabelloides Lea. " "	1842	
" Edgarianus Lea. " "	1841	
" exiguus Lea. " "	1842	
" Geddingsianus Lea. " "	1841	
" Holstonensis Lea. " "	1841	
" lenior Lea. " "	1841	
" Lesueurianus Lea. " "	1842	
" lineatus Lea. " "	1841	
" incrassatus Lea. " "	1842	
" plenus Lea. " "	1842	
" striatus Lea. " "	1841	
" strigosus Lea. " "	1841	
" Tennesseensis Lea. " "	1842	
" tener Lea. " "	1842	
" tortivus Lea. " "	1842	
" tuberosus Lea. " "	*1842	

*It will be observed that Mr. Conrad continues the singular error of frequently dating my species of the *same memoir* in different years, while some of them in the same memoir he inserts without a date, viz.: *Stonensis, subangulatus, obesus*, &c.

Unio	Brumbyanus*	Lea.	Dated by Mr. Conrad,	1841
"	regularis	Lea.	" "	1841
"	mœstus	Lea.	" "	1841
"	sparsus	Lea.	" "	1841
"	argenteus	Lea.	" "	1841

Published in Memoir read before and deposited with the Amer. Phil. Soc. June 18th, 1841. Issued in Proceedings, No. 19, for October, 1841. These dates of Mr. Conrad's are therefore correct.

Unio	amygdalus	Lea.	Dated by Mr. Conrad,	1846
"	Buckleyi	Lea.	" "	1846
"	Buddianus	Lea.	" "	1846
"	fuscatus	Lea.	" "	1846
"	minor	Lea.	" "	1846
"	Monroensis	Lea.	" "	1841
"	neglectus	Lea.	" "	1846

Published in Memoir read before and deposited with the Amer. Phil. Soc. Aug. 18th, 1843. Permission given by the Society to print the descriptions. They were printed and issued the following day, Aug. 19th, 1843. Receipt of these printed descriptions acknowledged by the Society Sept. 15th, 1843. Therefore six of these are dated by Mr. Conrad *three years* after they were printed and issued!!

Anodonta	tetragona	Lea.	Dated by Mr. Conrad,	1846

Published in Memoir read before and deposited with the Amer. Phil. Soc. May 2, 1845. Printed descriptions issued in the Proceedings of that month, No. 33, p. 165, issued Aug., 1845. Generally the new species of this memoir are dated correctly (in 1845) by Mr. Conrad. The *tetragona* is one year wrong, and *M. minor* has no date.

In my last Memoir read before and deposited with the American Philosophical Society, March 5th, 1852, there are over fifty descriptions of new species. Two of these Mr. Conrad has omitted, viz.: *U. Oregonensis* Lea, and *U. successus* Lea. Twelve he inserts without date; the remainder are dated correctly,—1852.

This finishes the corrections of the numerous *errors of date* in Mr. Conrad's Synopsis, as regards the long series of my memoirs in the Trans. Am. Phil. Soc. It will be seen by the above tables of corrections, that he has, under his own rule of the time of issuing them printed, erroneously dated *about ninety of my species*. I do not pretend in this rectification to correct the *synonomy* of the

* At page 245 of Mr. Conrad's Synopsis in "Proceedings," this is given as a species; at p. 250 it is made a synonym to *glans* Lea.

Synopsis, as I have stated before. It would require too much space and time. Those interested in the subject must judge between the two synopses. I have certainly seen nothing in Mr. Conrad's to induce me to change the synonomy of mine. I shall be at all times most willing to render my own more perfect by corrections founded on fact.

Mr. Conrad gives precedence to claims on various principles. Sometimes he gives the priority of manuscript names in letters or labels, to printed descriptions and figures, as in the case of *Unio coccineus*, which I described and figured in the Trans. Am. Phil. Soc. (Dec. 19, 1834). He inserts it in his Synopsis "*Unio coccineus*, Hildreth, MSS." Certainly I never intended to deprive my old and excellent correspondent Dr. Hildreth of any credit due to his long and ardent services in the development of the Natural History of the Valley of the Ohio. He sent it to me with many others in June 1833. There were two shells which he thought to be new, and the names he proposed were *U. coccineus* and *Alasmodonta obscura*. I had previously received the latter from him and named it in honor of him (Unio Hildrethianus,) and communicated it to the American Philosophical Society. I adopted his proposed name for the first, as I am always accustomed to do, if it be appropriate, and called it *coccineus*. I also stated that it was the name proposed in his letter to me. I put *Hildrethianus* among the *Uniones* because it belonged to a peculiar group, by form and habit, which were classed as *Uniones*. Mr. Conrad, while he gives the name of *U. coccineus* to Hildreth, objects to my retaining the name of *plicatus* as Lesueur's, instead of giving it to Mr. Say as he does. It seems to me that the cases are entirely different. Mr. Lesueur gave the shell to Mr. Say with its name *plicatus*, as a new species. Mr. Say considered it as *only an undulated variety* of his *crassus*, pointing out that variation, and at same time said, that, "it is most probably a distinct species, and if so, the designation proposed by its accomplished discoverer, '*plicata*,' will be an excellent one." *He did not describe it*, and I believe all the conchological writers of the time accredited it to Lesueur, viz. Barnes, Rafinesque, Short and Eaton, Hildreth, &c. It was, subsequently to Mr. Say's notice, described by Barnes in Silliman's Journal, and accredited to Lesueur—Say's name following Lesueur's. It was then universally received as *plicatus* Lesueur, and is still known as such. Although neither he nor Mr. Say described it, it is better to retain its established authorship. If it be not retained as Lesueur's it must be given to Barnes, who was really the first to publish a description of it.

The same want of stability of plan displays itself in the authorship of *U. paliatus* from South Carolina. Dr. Ravenel sent me this species labelled by himself with this name. Believing that he meant to publish a description of it himself, I quoted it in my Synopsis, first edition, 1836, accrediting it to him, and so continued it in the 2d and 3d editions. Mr. Conrad, on the contrary, accredits it to me, and refers to the page of my Synopsis where I insert the species as Ravenel's, and he adds to this error by quoting for it the Trans. Am. Phil. Soc. vol. x. page 79, pl. 7 fig. 20 where *it* will not be found, but quite a different species, the *U. pallescens* Lea, which, at p. 254 of the Proceedings, in his Synopsis, he inserts as a distinct species. I never described *paliatus*, nor claimed it in any way. It never has been described, I believe, but having been so long known as *paliatus* of Ravenel, I hope it will be continued as such. I have no desire to have my name attached to any species which I have not been the first to describe.

Regarding the "notes" on several species at the end of Mr. Conrad's synopsis, having long since given my opinion respecting *U. complanatus*, Solander, *U. obliquus* Lam. and most of the others, I shall not repeat these opinions; but I am glad to see in a note on *carinosus*, Say, (p. 261,) that he has at last done justice to Lamarck in acknowledging his *luteolus*. In this note he says he followed Ferussac in referring *luteolus* to that species, but that his "description does not apply. It very well describes *U. siliquoidens* Barnes." I stated in 1833 that, having examined Lamark's specimen of *luteolus* in Paris, I found it to be a true *siliquoidens* Bar., and therefore have ever since given *luteolus* priority, as I was bound to do in common justice. But notwithstanding that Lamark

"very well describes the *U. siliquoideus* Barnes," (under the name of *luteolus*) as Mr. Conrad states, and that I had mentioned (Trans. 1833) having seen the specimen itself in Paris, still Mr. Conrad, in 1834, places *luteolus* Lam. as a synonym to *cariosus*, Say; and in 1836, changing *siliquoideus* Bar. into a type, he says he would have adopted *luteolus* Lam., if Ferussac had not referred Lamark's specimen of *luteolus* to *cariosus*, Say. Thus relying more on Ferussac's opinion (whom I found really not very well acquainted with our species) than to his own judgment on studying a description, which did apply; or, on mine, to confirm it, who had examined the original carefully. Now in 1853, he comes to the conclusion that *U. luteolus* Lam. = *U. siliquoideus* Bar., exactly what I stated twenty years ago in the Trans. Am. Phil. Soc. vol. 5, p. 91.

The note on *U. viridis* Raf. (p. 266) may be answered by saying that in describing *U. Tappanianus*, I did not then believe, nor do I now, that it is the shell Rafinesque had before him when he wrote his description. He does not allude to the striking peculiarity of the teeth of *Tappanianus*, and he says his shell is "common in the Kentucky and the small rivers adjacent." The *Tappanianus* is supposed not to exist in the west. The reason that I did not retain the name of *viridis* and give it to Mr. Conrad as he suggests, was that I did not believe that he and Rafinesque described the same shell, and I did not wish to use the names of the latter.* The fact stated by Mr. Conrad, that the specimen was labelled by Rafinesque himself as the *U. viridis*, and that its habitat was the Kentucky river, ought to have satisfied him that it was one of the numerous errors of Rafinesque.† That there is an error in the habitat or the name, there is no doubt. Mr. Say, in his Synopsis, with the advantage of comparing this specimen labelled by Rafinesque, declares it to be his *cariosus!* This affords another of the very many difficulties attending the attempt to substantiate Mr. Rafinesque's species. It has been the cause of the loss of an immense deal of time among naturalists, and it would have been better for Natural History if he was entirely "considered to be destitute of authority and entirely unworthy of notice," as Dr. Binney years ago concluded.

As regards the note on *obliquus* Lam. (p. 265), Mr. Conrad suggests that I considered *undatus* Bar. a synonym, because Mr. Barnes gave it with a mark of doubt. Mr. Conrad does not advert to the fact that I had seen the original specimen in Paris in 1832, and that I had published my note of it on my return.

In his note on *U. fasciolus* Raf. (p. 267) he says that the specimen was labelled by Rafinesque. Notwithstanding this it was not admitted by him in his Synopsis of 1834 at all! But Mr. Say introduced it in his Synopsis with *multiradiatus* Lea, as a synonym, which (*multiradiatus*) Mr. Conrad had admitted as a *good species*. In 1836, however, Mr. Conrad in his Monography, introduced *fasciolus* Raf., and then degraded *multiradiatus* as its synonym. Now in 1853 he makes *multiradiatus* a synonym to *ligamentinus* Lam., and *fasciolus* is made to appropriate *subangulatus* Lea, as a synonym, which was described in Trans. 1840 in vol. 8th not 10th as quoted by Mr. Conrad.

I am gratified to see (p. 266) that *U. trigonus* Lea, after twenty years denial, is acknowledged to be a distinct species. In Mr. Conrad's Synopsis, 1834, he made it a synonym to *undatus* Bar., as Mr. Say also did in his Synopsis. My own label on the specimen given by me to the Academy at the time, was superseded for years by Barnes's name of another shell. There never was any doubt in my own mind about it, after I had given it a proper examination.

I object to Mr. Conrad's changing my name *Unio Moussonianus*, named after Prof. Mousson, to *Moussianus*, and that of *Estabrookianus*, named after Prof. Estabrook, to *Eastbrookianus*, as well also *Margaritana Vandenbuschiana*, named after Dr. Vandenbusch, to *Buschiana*.

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* My having done so in the *U. interruptus* and one or two others was entirely an oversight and unintentional. I always intended to avoid using Rafinesque's names.

† In a letter from the late Dr. Ward, of Chilicothe, 1836, he says in regard to this species, "that is another of Professor Rafinesque's apocryphal tales."

Some of my species seem to be entirely omitted in this Synopsis. I do not observe *U. ahensus*, *U. occultus*, *U. Oregonensis*, *U. patulus*, *U. pressus*, *U. succissus*, *U. multiplicatus* (nor *heros* Say), *Anodonta Dunlapiana* nor *An. globosa*. In a note on *cuneatus* Raf. (p. 267), Mr. Conrad says it is a form between *U. patulus* and *U. elevus*, but he does not place *patulus* Lea, in his list of species, although in his Monography in 1838 he acknowledges it with a description and figure.

At page 258 Mr. Conrad gives "*U. tenerus* Ravenel, Lea, 1834, V. 63, 9, 2." I never described nor figured this shell, and there is no reference to it in vol. 5, Trans. at p. 63, nor is it figured in plate 9. *U. teneris* Ravenel and *U. paliatus* Ravenel, are most singularly erroneous in their introduction. They have both been well known under Dr. Ravenel's names by his kindly distributing them. Having himself named them when he sent them to me, I distributed duplicates at home and abroad with his names. Although he did not describe them subsequently, as I supposed he would, I still retained his names in my editions of the Synopsis and quoted the authorship to him. Mr. Conrad, by not keeping to a strict rule, gives in his Synopsis one (*paliatus*) to me and the other (*tenerus*) to Ravenel. To add to this error he refers to my memoirs for both of them, quoting the page of text and the plates for figures, where they never have appeared at all!

I trust that I have vindicated the dates of my species by references to the facts regarding them. This defence has cost me much time in searching for the proofs necessary to rebut the errors of this Synopsis, and I think it will not be denied that it is effectually done.

The Recording Secretary read his Annual Report, as follows:

REPORT

OF THE RECORDING SECRETARY

For 1854.

During the past year twenty-eight Members and eighteen Correspondents have been elected. One has resigned.

Four have died, to wit: Mr. John Speakman, one of the Founders of the Academy; Octavus A. Norris, Esquire; Robert M. Patterson, M.D.; and Jacob G. Morris, Esquire, who was lost with the steamship Arctic.

During the same period sixty-four papers have been read before the Society, intended for publication in their Journal or Proceedings:

By Spencer F. Baird, two, to wit: 1. Descriptions of new species of North American Ranæformes and Hylæformes in the Museum of the Smithsonian Institution. 2. Descriptions of new Birds, collected between Albuquerque, New Mexico, and San Francisco, Cal., &c.

By Spencer F. Baird and Charles Girard, two, to wit: 1. Descriptions of new species of Fishes collected in Texas, New Mexico, and Sonora, by Mr. John D. Clark, on the U. States and Mexico Boundary Survey, and in Texas by Captain Stewart Van Vliet, U. S. A., second part. 2. Notice of a new genus of Cyprinidæ.

By John Cassin.—Synopsis of the Falconidæ which inhabit America north of Mexico, with descriptions of new species.

By T. A. Conrad, six, to wit: 1. Monograph of the genus Argonauta, with descriptions of five new species; published in the Journal. 2. Synopsis of the genus Cassidula and of a proposed new genus Athleta. 3. Omissions and corrections to a Synopsis of the North American Naiades. 4. Synopsis of the genera Parapholas and Penicilla; published in the Journal. 5. Rectification of the generic names of Tertiary Fossil Shells. 6. Notes on Shells, with descriptions of three recent and one fossil species.

By Lieut. D. M. Couch, U. S. Army.—Notes on Birds observed in Texas and

in the States of Nueva Leon, Tamaulipas and Coahuila, Mexico, with descriptions of new species.

By James D. Dana.—Catalogue and descriptions of Crustacea, collected in California by Dr. John L. Le Conte.

By J. W. Dawson.—On Fossil Coniferous Wood from Prince Edward's Island.

By Wm. Dudley.—Description of a species of Crane found in Wisconsin, presumed to be new.

By Elias Durand and Theodore C. Hilgard, M.D.—Plantæ Heermannianæ Californicæ; Descriptions of new Plants collected in South California by Dr. A. L. Heermann, Naturalist attached to the Survey of the Pacific Railroad route, under Lieut. R. S. Williamson, U. S. Army, with remarks on other plants heretofore described, belonging to the same collection. Published in the Journal.

By John Evans, M.D., and B. F. Shumard, M.D., three, to wit: 1. Descriptions of new Fossil species from the Cretaceous Formation of Sage Creek, Nebraska. 2. Additions to a former Paper, containing descriptions of new fossil species from Nebraska. 3. Descriptions of new fossil species from the fresh water Tertiary formation of Nebraska.

By W. P. Gibbons, M.D., two, to wit: 1. Descriptions of four new species of Viviparous Fishes from Sacramento River and the Bay of San Francisco; read before the California Academy of Natural Sciences, Monday, May 15th, 1854. 2. Descriptions of new species of Viviparous marine and fresh water Fishes, from the Bay of San Francisco and from the River and Lagoons of the Sacramento; read before the California Academy of Natural Sciences, January 9th, 1854.

By Charles Girard, nine, to wit. 1. On a new Entomostracan, of the family Limnadidæ, inhabiting the western waters. 2. Notice of a new species of Salmonidæ from the north-eastern part of the United States. 3. A list of the North American Bufonids, with diagnoses of new species. 4. Descriptions of new Fishes collected by Dr. A. L. Heermann, Naturalist attached to the Survey of the Pacific Railroad route, under Lieut. R. S. Williamson, U. S. Army. 5. Continuation of a former Paper, describing Fishes collected by Dr. A. L. Heermann. 6. Enumeration of the species of Marine Fishes collected at San Francisco, Cal., by Dr. C. B. R. Kennerly, Naturalist attached to the Survey of the Pacific Railroad route, under Lieut. A. W. Whipple, U. S. Army. 7. Observations on a collection of Fishes made on the Pacific coast of the United States, by Lieut. W. P. Trowbridge, U. S. Army, for the Museum of the Smithsonian Institution. 8. Characteristics of some Cartilaginous Fishes of the Pacific coast of North America. 9. Abstract of a Report of Lieut. James M. Gilliss, U. S. Navy, upon the Fishes collected during the U. S. Naval Astronomical Expedition to Chili.

By Edward Hallowell, M.D., six, to wit: 1. Descriptions of New Reptiles from California. 2. On a new genus and species of Serpents from Honduras, presumed to be new. 3. Remarks on the Geographical Distribution of Reptiles, with descriptions of several species supposed to be new, and corrections of former Papers. 4. Contributions to South American Herpetology. 5. Notices of new Reptiles from Texas. 6. New Reptiles from the coast of Guinea.

By A. L. Heermann, M.D.—Additions to North American Ornithology.

By J. E. Holbrook, M.D.—Descriptions of Fishes of Florida. Published in the Journal.

By Joseph Jones.—Abstract of Experiments upon the Physical Influences exerted by living organic, and inorganic Membranes upon Chemical Substances passing through them by Endosmose.

By Alfred T. King, M.D., three, to wit: 1. On the Ancient Alluvium of the Ohio River and its tributaries. 2. Descriptions of fossil Trees in the Coal Rocks near Greensburg, Westmoreland Co., Pa. 3. Description of fossil Fruit found in the Carboniferous Rocks of Beaver Co. Pa.

By Isaac Lea.—Rectification of Mr. T. A. Conrad's "Synopsis of the family of Naïades of North America," published in the Proceedings of the Academy of Natural Sciences of Philadelphia, February, 1853.

By John Le Conte, F.L.S., three, to wit: 1. Notice of American Animals for-

merly known, but now forgotten or lost. 2. Observations on the Vespertilio leporinus of Linnæus. 3. Descriptions of four new species of Kinosternum.

By John L. Le Conte, M.D., ten, to wit: 1. Descriptions of new Coleoptera from Texas, chiefly collected by the U. S. Boundary Commission. 2. Descriptions of some Coleoptera from Oregon, collected by Dr. J. G. Cooper, &c., &c. 3. Synopsis of the Œdemeridæ of the United States. 3. Note on the genus Ambychila, Say. 5. Synopsis of the species of Platynus and allied genera, inhabiting the United States. 6. Synopsis of the Cucülides of the United States. 7. Notice of some new Coleopterous Insects, from the collections of the U. S. and Mexican Boundary Commission. 8. Synopsis of the Dermestidæ of the United States. 9. Synopsis of the Byrrhidæ of North America. 10. Synopsis of the Erotylidæ of the United States.

By Joseph Leidy, M.D., five, to wit: 1. On Bathygnathus borealis, an extinct Saurian of the new Red Sandstone of Prince Edward's Island; published in the Journal. 2. Synopsis of extinct Mammalia, the remains of which have been discovered in the Eocene formation of Nebraska. 3. Description of a Fossil apparently indicating an extinct species of the Camel tribe. 4. On Urnatella gracilis and a new species of Plumatella. 5. Notice of some fossil Bones discovered by Mr. Francis A. Links, on the banks of the Ohio River, Indiana.

By Joseph G. Norwood and Henry Pratten, two, to wit: 1. Notice of Producti found in the Western States and Territories, with descriptions of twelve new species; published in the Journal. 2. Notice of the genus Chonetes, as found in the Western States and Territories, with descriptions of eleven new species; published in the Journal.

By M. Tuomey.—Descriptions of some new Fossils from the Cretaceous rocks of the Southern States.

During the same period the By-Laws have been amended as follows:

Chap. VIII., Art. 1.—Strike out "Any Specimen belonging to the Academy and not presented under restrictions, may be loaned to members or correspondents for purposes of scientific investigation by the consent of three-fourths of the Curators, and for a period not exceeding three months; any person to whom specimens may be loaned shall first deposit with the Curators a sum, not less than fifty dollars, in cash, which they may deem necessary to ensure the safe return of the specimen, and he shall be subject to a fine equal in amount to one-third of the security given, for each month that the specimen may be retained beyond the time specified for its return. The specimen loaned, together with the date at which its return may be due, shall be reported to the Academy by the Curators at the meetings for Business in March, June, September and December."

And insert: "No specimen of Natural History contained in the collections of the Academy, shall be loaned from the Hall under any pretence or for any purpose whatsoever."

Chap. XII., Art. 2.—Strike out "No alterations shall be made in these By-Laws unless they be proposed in writing at a meeting for business, lie on the table for one month, and be sanctioned by the affirmative votes of two-thirds of the subsequent meeting for business, at least twelve members being present."

And insert: "Every proposition to alter or amend these By-Laws shall be submitted in writing at a meeting for business; and, if adopted by the affirmative votes of two-thirds of the members present, it shall be read at the meeting for business next succeeding, when, if adopted by the affirmative votes of two-thirds of the members present, it shall be again read at the next succeeding meeting for business, when, on receiving the affirmative votes of two-thirds of the members present, it shall become a part of these By-Laws; provided, that at least twelve members be present at each of the three meetings."

Chap. XII.—A new article added, as follows:

Art. III.—No one or more of the By-Laws of this Academy shall be suspended.

All of which is respectfully submitted, by

B. Howard Rand,
Recording Secretary.

The Librarian read the following

REPORT FOR 1854.

During the present year 729 additions have been made to the Library, 146 of which are in volumes, 446 in parts or numbers, and 137 in pamphlet form. Nearly all are works on Natural Science, in its various departments, or Journals, Transactions, Memoirs, &c., of learned Societies, foreign and domestic, with many of which the Academy is in correspondence or exchange. The subjoined list exhibits the subjects embraced in the contributions of this year:

	Volumes.	Parts or Nos.	Pamphlets.
Natural Sciences,	59	62	63
Anatomy and Physiology,	6	11	15
Journals, Trans., Proceedings, &c., of Societies,	63	369	
Physical Science and Chemistry,	3	3	17
Voyages and Travels,	9		2
Biography,	1		3
History,	1		
Miscellaneous,	4	1	37
	146	446	137

Of these, Authors have contributed 94; Editors 70; Societies, Corporations, &c., 228; Dr. Wilson 291; other members, correspondents and individuals 43; and the U. S. Government 3; Total 729.

WM. S. ZANTZINGER, Librarian.

Hall of the Academy, December 26, 1854.

The Report of the Treasurer for 1854 was read and referred to the Auditors.

Dr. Leidy, on behalf of the Curators, read the following

REPORT OF THE CURATORS FOR 1854.

The alterations and enlargement of the building of the Academy commenced in 1853, and found necessary to accommodate the increasing museum and library, have so far advanced, that in a few more months they will be completed. In the new museum room, arrangements of a portion of the cabinet are already begun, but the Curators propose deferring, until the next annual report, a detailed account of the improvements in the building and the re-arrangements of the museum and library.

During the year just about closing, the donations to the museum have been as follows:

Mammalia.—Of this class 57 specimens of 42 species have been presented. Among them is a noble specimen of an Elk, *Cervus Americanus*, shot in this State, and presented by a number of our members.

Birds.—A small but valuable collection of bird-skins from Honduras, was presented by Dr. S. Woodhouse. There were also 12 species of birds presented by different members.

Reptiles.—A collection of 10 species from Central America, and 16 species chiefly from Texas and New Mexico, was presented by Dr. Woodhouse; a second collection of 18 species from California, by Dr. Heermann; a third collection of 9 species from the Gaboon country, Africa, by M. Belloni Duchaillu; and a fourth collection of 9 species from New Jersey, by Mr. S. Ashmead. Besides these, various persons presented 16 species of reptiles.

Fishes.—Dr. Heermann presented a collection of 18 species from California, and various members and others presented 12 species.

Mollusks.—Dr. Albers, of Berlin, through Mr. Lea, presented a collection of 70 species of land shells, chiefly from Madeira; Dr. Le Conte presented a valuable collection of marine shells from the Sandwich Islands; and Lieut. G. H. Hare presented a collection of marine shells from the Mediterranean and other localities. Besides these collections, numerous specimens of 16 species were presented by various persons.

Insects.—To this class we have obtained an unusually rich accession. John A. Guex, Esq., has presented to the Academy his entire cabinet of entomology, consisting of 1500 specimens of American and European Lepidoptera, and nearly 17,000 species of Coleoptera, systematically arranged in accordance with modern nomenclature, and nearly all catalogued. Other persons have presented about 20 species of insects.

Crustaceans, arachnides, myriapods, annelides and zoophytes.—Of these classes of animals, numerous specimens of twelve species have been presented by various members.

Comparative Anatomy.—2 skeletons, 5 crania, and 2 other anatomical specimens were presented. One of the skeletons, that of a dog, was presented by Mr. Lambert, the other, that of a Heterodon, was presented by Dr. Hallowell.

Botany.—A collection of plants from New Holland and the Azores was presented by Mr. R. Kilvington; and a collection of 100 specimens from California, by Mr. Henry Pratten, of New Harmony. Besides these, 12 species of plants, fruits, &c., were presented by different persons.

Palæontology.—A collection of fossils from San Pedro, Santa Barbara, and the Colorado Desert, was presented by Dr. Heermann; a second from the south of Europe, by Lieut. G. H. Hare; a third of cretaceous fossils from Dallas co., Texas, by Mr. A. Goubenaut; and a fourth of cretaceous fossils from Alabama, and eocene fossils from Virginia, by Mr. Joseph Jones. Besides these collections, fifty specimens of fossils were presented by different members and other persons. Among the specimens are five of the tracks of the huge extinct *Brontozoum gigantеum*, in sandstone, from Connecticut, presented by Dr. T. D. Mütter, and several fragments of Indian crania and teeth, encrusted with carbonate of lime, from a cave in California, presented by Dr. W. H. Housten.

Mineralogy.—A collection of 40 specimens of metallic ores from Peru was presented by Dr. S. W. Mitchell; and 70 other specimens of minerals from various localities, were presented by different members and others.

This report is respectfully submitted for the acceptance of the Academy by

JOSEPH LEIDY,
Chairman of the Curators.

The following resolution was offered by Mr. Isaac Lea, and unanimously adopted:

Resolved, That a Committee be appointed to draft a memorial to Congress, urging the sending out of an Expedition for the relief of our fellow member, Dr. Kane, and his companions in the Arctic Regions.

The following Committee was appointed: Mr. Isaac Lea, Dr. Zantzinger and Dr. Bridges.

On motion, the Committee was instructed to report at next meeting.

The Society then proceeded to elect Officers and a Publication Committee for 1855, with the following result:

President, - - - - - - -	GEORGE ORD.
Vice Presidents, - - - - - -	Robert Bridges, Isaac Lea.
Corresponding Secreta - - - -	John L. Le Conte.

Recording Secretary,	B. Howard Rand.
Librarian,	Wm. S. Zantzinger.
Treasurer,	George W. Carpenter,
Curators,	Joseph Leidy, William S. Vaux, Samuel Ashmead, John Cassin.
Auditors,	Robert Pearsall, Samuel Ashmead, James C. Fisher.
Publication Committee,	William S. Vaux, Robert Bridges, Isaac Lea, H. Cooper Hanson, Joseph Leidy.

ELECTION OF MEMBERS.

Dr. William Freeman, and Dr. William H. Hooper, of Philadelphia, were elected *Members.*

DONATIONS TO LIBRARY

In September and October, 1854.

September 5th.

The Young Conchologist's Book of Species. By Sylvanus Hanley. 8vo. From Mr. H. C. Hanson.

Bulletin of the American Geographical and Statistical Society. Vol. i. part 3 for 1854. From the Society.

American Journal of Science and Arts, Sept., 1854. From the Editors.

Virginia Medical and Surgical Journal, Vol. 4, No. 3. From the Editors.

Cape Verde and Hatteras Hurricane of August and Sept., 1853. By Wm. C. Redfield. From the Author.

September 12th.

New Orleans Medical and Surgical Journal for September, 1854. From the Editors.

Monographie des Guepes solitaires. Par H. F. de Saussure. Nos. 3, 4, 5, 6. From the Author.

Revue et Magasin de Zoologie, 1854. Nos. 1—6. From Dr. Wilson.

Comptes Rendus. Tome 39, Nos. 2—6. From the same.

Illustrations of the Birds of California, Texas, Oregon, &c. No. 6. By John Cassin. From the same.

Journal of the Franklin Institute for Sept., 1854. From the same.

September 19th.

United States Patent Office Report for 1853, part 1. 8vo. From the Patent Office.

Twenty-sixth Annual Report of the Natural History Society of Montreal, May, 1854. From M. H. Latour.

October 10th.

Proceedings of the California Academy of Natural Sciences. Vol. 1, pp. 1—6. From the Society.

Charleston Medical Journal and Review, September, 1854. From the Editors.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 1—16. From the Society.

Quarterly Journal of the Geological Society of London. No. 39. From the Society.

Journal of the Indian Archipelago and Eastern Asia. Vol. 7, Nos. 6—12. From the Editors.

Principles of Comparative Physiology. By Wm. B. Carpenter, M.D. New American, from the 4th London Edition. By F. G. Smith, M.D. 8vo. From Dr. Smith.

Transactions of the Wisconsin State Agricultural Society. Vols. 1 and 2, 1851 and 1852, 8vo. From Mr. J. A. Lapham.

The following were presented by Dr. Wilson, on the usual condition:

Conchologia iconica. By Lovell Reeve. Parts 131 and 132.

Annals and Magazine of Natural History, for August and September, 1854.

London, Edinburgh and Dublin Philosophical Magazine for August and September. 1854.

London Athenæum for August, 1854.

Thesaurus Conchyliorum. By G. B. Sowerby, Jr. Part 15.

Comptes rendus, Tome 39, Nos. 7, 8.

Revue et Magasin de Zoologie, 1854, No. 7.

Malakozoologische Blatter, Jan., 1854.

Insecta Britannica. Vol. 3. Lepidoptera Tineina. By H. T. Stainton. 8vo.

October 17th.

The Virginia Medical and Surgical Journal. Vol. 3, No. 5. From the Editors.
Report of the Special Committee of the Board of Regents of the Smithsonian Institution on the Distribution of the Income. From the Institution.
Essai sur les Terrains Superficiels de la Vallée du Po, aux environs de Turin. Par MM. Ch. Martins et B Gastaldi. From the Authors.
Report of the Superintendent of the Coast Survey, showing its progress during 1852. 4to. From the U. S. Treasury Department, through Prof. A. D. Bache.
Untersuchungen über den Farbenwechsel des Afrikanischen Chamæleons. Von Ernst Brücke. From the Author, through Prof. Dunglison.
Ueber die Farben, welche trübe Medien im auffallenden und durchfallenden Lichte zeigen. Von Prof. Brücke. From the same.
Ueber die Wirkung complementär gefärbter Gläser beim Binoculären sehen. Von Prof. Brücke. From the same.
Die Arbeitsthiere. Von Prof. Brücke. From the same.

October 24th.

Memoires de l'Academie Royale des Sciences, &c., de Belgique. Tome 27. 4to. From the Academy.
Memoires Couronnés et Mémoires des Savants Ètrangers, publiés par l'Acad. Roy. de Belgique. Tome 25. 4to. From the same.
Memoires Couronnés et Memoires des Savants Ètrangers, publiés par l'Acad. Roy. de Belgique. Collection in 8vo, tome 5, 2e partie, tome 6, 1me partie. From the same.
Bulletins de l'Acad. Royale des Sci. de Belgique. Tome 19, 3me partie, tome 20, 1me, 2e, 3me part., tome 21, 1me part., et annexe aux Bulletins 1853, 1854. From the same.
Annuaire de l'Acad. Royale des Sci. de Belgique, 1853, 1854. 12mo. From the same.
Of the Constants of Nature. Class Mammalia. By M. Ch. Babbage. From the same.
Proceedings of the New Orleans Academy of Sciences. Vol. 1, No. 1; also Constitution and By-laws of the same. From the Academy.
A System of Mineralogy, comprising the most recent discoveries. By James D. Dana. 4th edition, 8vo. From the Author.
London Athenæum for September, 1854. From Dr. Wilson.
Journal of the Franklin Institute for Oct., 1854. From the same.
Revue et Magasin de Zoologie, 1854, No. 8. From the same.
Comptes Rendus, Tome 39, Nos. 9, 10, 11, 12. From the same.

DONATIONS TO MUSEUM

In November and December, 1854.

November 7th.

Mounted specimens of Cercopithecus sabæus, Cercocebus fuliginosus and Ateles melanochir. Received in exchange.
Skin of the Argus pheasant, and several valves of Dipsas plicata, with images artificially formed on the inner surface. From China. Presented by Capt. Drinker.
A collection of Plants from the Azores. From Mr. R. Kilvington.

November 14th.

One hundred specimens of Plants from California. Presented by Mr. Henry Pratten, of New Harmony, Indiana.
Slab of Red Sandstone, with an impression of an unknown character, from Connecticut. From Mr. Samuel Breck.

November 21st.

Three Tarantulas and three Scorpions, from Antigua; two Reptiles, from

Barbadoes; and a fine specimen of the Jaws of a Shark. Presented by Dr. W. H. Freeman.

Hematite, from Centre Co., Pa. Presented by Col. McCall.

Mr. John A. Guex's collection of Coleoptera, containing nearly seventeen thousand species, systematically arranged in accordance with modern nomenclature; with a catalogue of most of the species. Presented by Mr. Guex.

December 5th.

Specimens of Native Copper and Iron Ore, from Lake Superior: Sulphuret of Iron and Gold-bearing Quartz, from California; and Copper Ore, from Cuba. Also, two Lizards, from the same. Presented by Dr. Gavin Watson.

Diodon ———, Trunk fish, a Frog, and two Mammals, from the West Indies. From Dr. W. H. Freeman.

Skeleton of Heterodon platyrhynos. From Dr. Hallowell.

Fine specimen of Crystalline Slag, from Spring Mill, Pa. From Mr. Theodore H. Rand.

Twenty-four specimens of Mammals, from the Bonaparte Collection. Presented by Dr. Wilson.

December 12th.

Specimen of Belone truncata, from Chesapeake Bay. From Mr. Chas. S. Smith.

The following were presented by the Smithsonian Institution:

Skins of Cervus tarandus, L. ♂ and ♀ in winter coat, and same, ♂ in summer coat, from Lapland; of Ursus arctos ♂ (biennis) (and neogenus,) from Sweden; of Phoca annulata, and Phoca vitulina, from the Baltic; and of Canis lupus ♂, from Sweden.

And the following were deposited by the same:

Gulo borealis, ♂ and ♀ from Lapland, and Meles taxus, from Sweden.

December 19th.

A valuable collection of Marine Shells, Fossils, Reptiles, Fishes, Corals, Worms and Crustacea, from various localities in the South of Europe and North of Africa. Presented by Lieut. G. H. Hare, U. S. N.

A collection of Birds from Western Africa. Presented by Dr. J. K. Mitchell.

Sulphate of Barytes, from Connecticut, and Celestine, from the same. Presented by W. S. Vaux, Esq.

Native Silver, from Copiapo, Chili. Presented by Dr. B. H. Rand.

DONATIONS TO LIBRARY

In November and December, 1854.

November 7th.

Essay on a new method of treating Serpent bites, and other poisoned wounds. By D. Brainard, M.D. From the Author.

American Journal of Science and Arts, Nov., 1854. From the Editors.

Malakozoologische Blatter. Von Menke und Pfeiffer. Aug., 1854. From Dr. Wilson.

Annales des Sciences Naturelles. 4me. serie, tome 1, Nos. 4, 5, 6. From the same.

Comptes Rendus, tome 39, Nos. 13, 14. From the same.

A History of the Fishes of Massachusetts. By D. Humphreys Storer, M.D., pp. 91—130 inclusive. 4to. From the Author.

Report of the Commissioner of Patents for 1853. Part 2. 8vo. From the Franklin Institute.

November 21st.

Memoires de la Société Royale des Sciences de Liége. Tome 9. 8vo. From the Society.

Descriptions of New Fishes, collected by Dr. A. L. Heermann, Naturalist to the Survey of the Pacific Railroad Route under Lieut. Williamson, U. S. A. By Chas. Girard. From the Author.

Notice of a new species of Salmonidæ, from the N. E. part of the United States. By Charles Girard. From the Author.

Descriptions of New Birds, collected between Albuquerque, New Mexico, and San Francisco, Cal., in 1853, '54, by Dr. C. B. Kennerly and H. B. Möllhausen, Naturalists attached to the Survey of the Pacific Railroad Route under Lieut. Whipple. By S. F. Baird. From the Author.

Discovery of Viviparous Fish in Louisiana. By Bennett Dowler, M. D. From the Author.

Illustrations of the Birds of California, Texas, Oregon, &c. By John Cassin. No. 7. From Dr. Wilson.

London Athenæum for October, 1854. From the same.

December 5th.

Verhandelingen der k. Akad. von Wetenschappen. 1ste deel. 4to. From the Academy.

Verslagen en Mededeelingen der k. Akad. von Weten. Deel. 1, deel 2, stuck. 1, 2. From the same.

Zeitschrift für die Gesammten Naturwissen. Herausg. von dem Naturwissen. Vereine für Sachsen und Thüringen in Halle. Jan. to Dec., 1853. Jan. to July, 1854. From the Association.

Hollandische Beiträge zu den anatomischen und physiologischen Wissenschaften herausg. von Dr. J. Van Deen, &c. Band 1, heft 1, 2, 3. From Dr. Leidy.

Des Substances Organiques. Thése par Ad. Antoine Gannal. From the same.

Ook een Woordje over den Dodo (Didus ineptus) en zijne verwanten. Door H. Schlegel. From the Author, through Ogden Hammond, Esq.

Over den Grœi en de Kleurveranderingen der Vederen van de Vogels. Door H. Schlegel. From the same.

Eighth Annual Report of the Board of Regents of the Smithsonian Institution, and Proceedings to July 8, 1854. From the Smithsonian Institution.

Proceedings of the Historical Society of New York, October, 1853. Ruins of Tenampua, Honduras. By E. Squier. From Mr. Squier.

Virginia Medical and Surgical Journal, Vol. 3, No. 6. From the Editors.

Plantæ Novæ Thurberianæ: characters of new genera and species of Plants in a collection made in New Mexico and Sonora by Geo. Thurber, Esq. By Asa Gray, M.D. From the Author.

Note on the affinities of the genus Vavæa, Benth.; also of Rhytidandra, Gray. By Asa Gray, M.D. From the Author.

Report on the Iron and Coal of Pennsylvania. By Dr. Chas. M. Wetherill. From the Author.

Description of an Apparatus for organic analysis by illuminating Gas. By C. M. Wetherill, M.D. From the Author.

Examination of the Gas from the Philadelphia Gas Works. By C. M. Wetherill, M.D. From the Author.

Dr. Wilson presented the following, on the usual condition:—

Comptes Rendus. Tome 39, Nos. 15, 16, 17, 18.

Revue et Magasin de Zoologie. 1851. No. 9.

Annales des Sciences Naturelles. 4me. serie, tome 2, No. 1.

Journal of the Franklin Institute, November, 1854.

A Catalogue of American Minerals. By Samuel Robinson, M.D. 8vo.

Manual of Mineralogy and Geology. By Ebenezer Emmons, M.D. Second edition. 8vo.

January 2d, 1855.

Vice-President BRIDGES in the Chair.

A letter was read from Mr. Joseph Harrison, Jr., dated Jan. 2, 1855, accompanying the donation from him acknowledged this evening.

On leave granted, the Committee appointed at last meeting to prepare a memorial to Congress soliciting aid to Dr. Kane and his companions in their Arctic peril, reported the following memorial, which was adopted.

To the Honorable the Senate and House of Representatives of the United States in Congress assembled.

The Memorial of the Academy of Natural Sciences of Philadelphia, respectfully represents:

That Dr. Kane, a member of the Academy, and his companions, may at this moment be in urgent need of the protecting hand of those in whose power alone it is possible to give material aid.

Knowing well the prudence and perseverance of Dr. Kane, it cannot be doubted that he has taken all the precautions possible for the safety of those who have been placed under his charge in the perilous and benevolent voyage which he has undertaken for the relief of that intrepid traveller Sir John Franklin. But it is now known that Sir John is removed beyond all human alleviation of calamity, and Dr. Kane and his companions, your memorialists believe, now stand in need of that alleviation and support which they so generously volunteered at the risk of their lives, in toiling over dreary wastes, and in braving the rigors of a polar winter, as well as the storms of an Arctic sea.

Your memorialists fear that the cause of the delay of the return of Dr. Kane may arise from one of those accidents so incident to Polar voyages, the crushing and destruction of his vessel by the ice, in which case a *relief expedition* can alone in all probability mitigate his destitution and distress, and save him.

Your memorialists respectfully, but earnestly solicit that the earliest possible succour may be afforded to Dr. Kane and his companions.

On motion, the Secretary was directed to prepare copies of the above, to be signed by the officers of the Society and transmitted to Congress.

On motion of Dr. Rand, the thanks of the Academy were presented to Mr. Joseph Harrison, Jr., of this city, for his valuable donation of portraits of Sir Joseph Banks and Dr. Samuel L. Mitchell, received this evening.

January 16th.

Vice-President BRIDGES in the Chair.

Letters were read:

From the Royal Academy of Sciences of Stockholm, dated Dec. 4, 1854;

From the Acad. C. L. C. Nat. Curiosorum, dated Breslau, 26th Oct., 1854;

From the Geneva Natural History Society, dated 7th of November, 1854, and

From the Wurtemberg Verein für vaterlandische Naturkund., dated Stuttgart, 21st Nov., 1854, severally acknowledging the receipt of the Proceedings and Journal of the Academy.

Mr. Conrad presented for publication in the Proceedings the following papers, viz.

1. Descriptions of three new species of Unio.

2. Observations on the Eocene deposit of Jackson, Miss., with descriptions of thirty-four new species of shells and corals.

All of which were referred to a Committee consisting of Dr. Wilson, Mr. Chas. E. Smith and Mr. Phillips.

January 23d.

Vice-President BRIDGES in the Chair.

A letter was read from Dr. Wm. E. Dearing, dated Augusta, Georgia, 16th Jan., 1855, acknowledging the receipt of his notice of election as a Correspondent.

A paper was presented for publication in the Journal, entitled "Remarks on the Cryptogamic Flora of the State of Georgia, by Professor Julien Deby;" which was referred to Dr. Zantzinger, Dr. Bridges and Dr. Durand.

January 30th.

Vice-President BRIDGES in the Chair.

The Committee on Mr. Conrad's papers, read Jan. 16, 1855, reported in favor of publication.

Descriptions of three new species of Unio.

By T. A. CONRAD.

UNIO.

1. *U. Grandensis.*—Suboval, ventricose posteriorly, disks somewhat flattened; umbo distant from anterior margin, and with minute radiating lines extending to the tips of the beaks; no concentric undulations; within purple.

Locality. Rio Grande, Texas.

Allied to *U. cardium*, Raf., but differs in the striated beak, purple interior, &c.

2. *U. Taumilapanus.*—Oblong, somewhat compressed; substance of shell thick anteriorly and over the umbo; disks flattened; ligament margin nearly parallel with basal margin; umbo decorticated; within pure white.

Allied to *U. niger*, Raf., but more regularly oblong and very white inside.

Locality. San Juan river, Taumilapas.

3, *U. Pearlensis.*—Suboval; umbo ventricose; sides contracted before the umbonal slope, which is ridged or inflated; two or three radiating folds posteriorly, most prominent over the umbo; within whitish, with a purple margin.

Locality. Pearl river, Miss. Prof. Thomas.

Allied to *U. crassidens*, Lam., (*trapezoides*, Lea,) but proportionally much shorter, more ventricose over the umbones, and less folded. This shell belongs to my proposed genus *Plectomerus*, which, if without sufficient distinction in the animal to constitute a genus, will form a convenient and very natural subgenus.

Observations on the Eocene deposit of Jackson, Mississippi, with descriptions of thirty-four new species of shells and corals.

By T. A. Conrad.

The following table will show the order of succession of Eocene groups; but is not pretended to be more than an exposition of my limited knowledge of them, though they are doubtless presented in the true order of superposition. Further research may develope intercalated groups. No. 6, is probably synchronous with the Orbitulite limestone of St. Stephens, Alabama, as its two most prominent fossils are very abundant in this stratum at Vicksburg. No. 5, is the lowest bed exposed in the bank of the Mississippi river, at Vicksburg. Col. Wailes found a large *Ostrea* on the top of the Jackson group, which is probably the shell referred to in No. 5. It would be convenient to designate these sub-divisions thus:—Claiborne group; Jackson group; Vicksburg group; St. Stephens group;

	Groups of characteristic fossils.	
8.	Crassatella Mississippiensis, Arca Mississippiensis, Meretrix sobrina, M. imitabilis, Turbinella Wilsoni.	Newer Eocene, Vicksburg.
7.	Corbula alta, Natica.	
6.	Pecten Poulsoni, Orbitulites Mantelli.	
5.	Ostrea Georgiana?	
4.	Umbrella planulata, Cardium Nicolleti, Conus tortilis, Cypræa fenestralis, Galeodia Petersoni, Rostellaria extenta, &c.	Older Eocene, Jackson.
3.	Crassatella alta, Pectunculus stamineus, Meretrix æquorea, Gratelupia Hydii, Leda cælata, Crepidula lirata, &c.	Older Eocene, Claiborne.
2.	Ostrea sellæformis.	
1.	Cardita densata. Cyclas ———.	
Alabama river,		

Nos. 1 to 3 represent the Claiborne group; 4, Jackson group; 6, the St. Stephens group; 7 and 8, the Vicksburg group. When a group of corresponding fossils is to be found elsewhere, its relative position can be stated by referring to the typical subdivision which contains many identical species.

Since my discovery of the Eocene formation of Claiborne, Alabama, in 1832, by means of fossil shells collected by Judge Tait, numerous localities have been found in the southern States, and characteristic fossils have also been obtained by Major Emory, in Western Texas, and even in California, by Mr. Blake. Localities widely separated contain some species in common, but I did not anticipate that groups would vary to the extent they do in the three localities of Claiborne, Alabama, Jackson and Vicksburg, Mississippi. Col. B. L. C. Wailes, of Mississippi, has lately discovered a new group of Eocene fossils at Jackson, in which none of the Vicksburg species occur; and of forty species, five only are identical with Claiborne fossils. One of the Jackson shells, *Cardium Nicolletti*, Conrad, was first discovered in the bank of Red river, Washita; and, therefore, this latter locality will probably prove to belong to the same division of the Eocene as that of Jackson. The Mississippi deposit described by Col. Wailes, is a group of shells chiefly, of more than ordinary beauty and preservation, imbedded in sand of a gray color, consisting of fine angular grains of quartz and minute fragments of shells. One of the species, *Cypræa fenestralis*, is closely

related to *C. elegans*, of Deshayes; two remarkable species which have no analogue or kindred shell in later Tertiary formations. The state of preservation and the forms of these fossils are closely analogous to those of the Paris basin; and I find no recent nor any Miocene species among them. I believe the group to be newer than the Claiborne deposit, and certainly older than that of Vicksburg.

I think it will be found that No. 6, of the above table, represents that extensive limestone, which, in Alabama, contains the Basilosaurus remains; the *Laganum Rogersi*, Morton, near Claiborne, and near Brandon, Mississippi, where it has been discovered by Col. Wailes, occupying a higher position than the Jackson group. The limestone of Jacksonboro', Georgia, described by Lyell, is probably referrible to the same division, and contains the *Laganum Rogersi*, (*Scutella Jonesi*, Forbes.)

The following species of organic remains were collected by Col. B. L. C. Wailes, and are figured in his work on the Geology of Mississippi. Those illustrations are referred to in the descriptions.

CORBULA.

1. *C. densata*, Geol. of Miss. Pl. xiv., fig. 9.—Triangular, subequilateral, very thick in substance; surface undulated and having angular concentric striæ; umbonal slope submarginal and acutely carinated, posterior extremity angular.

Related to *C. nasuta*, Con. but proportionally shorter, thicker, with a more rounded base, &c. The description applies to the larger valve, as I have not seen the opposite one.

2. *C. bicarinata*, Pl. xiv., fig. 3.—Elevated, triangular, slightly oblique, thick in substance, profoundly ventricose, with robust reflected concentric lines; umbo profoundly prominent, and the beak incurved; posterior slope biangulated; space between the angles flattened, direct.

Resembles *C. oniscus*, Con., but is thicker, more elevated, not rostrated, and its slight obliquity is the reverse of that in the former species. I have not seen the smaller valve.

LEDA, *Schum.*

L. multilineata, Pl. xiv., fig. 4.—Ovato-elliptical, inequilateral, ventricose, with fine sharp concentric lines, which are somewhat undulated; anterior side rostrated, with closely-arranged, radiating, minute, tuberculated striæ; posterior side with unequal fine radiating lines, a few of which are very distinct; a few radiating lines are continued near the base over the middle of the valves.

Allied to *N. cælata*, Con., but very distinct.

NAVICULA, Blainville.

N. aspera, Pl. xiv., fig. 5.—Trapezoidal, disk contracted behind the middle, cancellated; concentric lines distant, imbricated; radiating lines largest towards the umbonal slope, subspinous; umbonal slope acutely angulated; posterior slope excavated; series of cardinal teeth uninterrupted; inner margin crenulated.

CARDIUM, Lin.

C. (*Protocardia*) *Nicolletti*, Pl. xiv., fig. 6. Proceed. Acad. Nat. Sc., 1841, p. 33.

This shell agrees, except in size, with the specimen originally described from the Washita, and doubtless the beds of that locality will prove to be of synchronous origin with those of Jackson. A species of Cardium very nearly allied to this, I formerly believed to be the same; but it accompanies a different group, and presents variations entitling it to be a specific distinction.

It is from Pamunkey river, Virg.

Compared with *C. Nicolletti*; umbo less inflated, posterior margin oblique, shell proportionally longer, and the radiating lines 22; in the other 25. The posterior cardinal tooth larger, &c. It may be named *C. lens*.

CRASSATELLA, Lam.

C. flexura, Pl. xiv., fig. 7.—Trapezoidal, inequilateral; ventricose medially; slightly contracted anteriorly, and more so posteriorly; umbonal slope angulated and prominent; whole surface with concentric prominent lines, some of which bifurcate anteriorly; inner margin crenulated.

Approaches *C. protexta*, Con., but has the striæ over the whole disk, the cardinal teeth more compressed; inner margin with larger crenulations, &c.

GLOSSUS.

G. flosus, Pl. xiv., fig. 8.—Orbicular, ventricose, with radiating lines, unequal, medially flattened, and towards the ends angulated; concentric lines microscopic, series of cardinal teeth uninterrupted, generally large and prominent.

Allied to *G. staminosus*, Con., but very distinct.

OSTREA, Lin.

O. trigonalis, Pl. xiv., fig. 10.—Triangular, flat, surface irregular, with some indistinct radiating lines; muscular impression obliquely suboval, situated nearer the summit than the base; margin somewhat ascending, submargin carinated.

A single imperfect upper valve is all that I have seen of this shell, but it is widely different from any other Eocene species known to me.

PECTEN, Lin.

P. nuperus, Pl. xiv., fig. 11.—Suborbicular, ventricose, with about twenty-three angular, prominent ribs, crossed by fine closely-arranged wrinkled lines; ears finely striated obliquely.

A single valve with the ears broken is all of this species in the collection.

UMBRELLA.

U. planulata, Pl. xiv, fig. 1.—Suboval, flattened, surface undulated, rising a little towards the apex, which is prominent and acute, and situated much nearer to one side and nearer to one end; lines of growth conspicuous; inner side with a very large suboval cicatrix, with radiating interrupted lines.

This fine species is the only one yet known in North America. Two specimens occur, one of which is marked with some hair-like brown radiating lines, both internally and externally.

CAPULUS, Mont.

C. Americanus, Pl. xv., fig. 1.—Obliquely ovate, longitudinally contracted on one side; lines of growth profound; summit very oblique; apex profoundly prominent, acute, curving towards the base and projecting far beyond the basal margin; aperture obtusely oval or suborbicular.

TROCHITA, Schum.

T. alta, Pl. xv., fig. 3.—Conic, elevated, with three or four transverse undulations; radii prominent, rounded, very irregular, interrupted, somewhat tuberculated; vertex central, spiral, somewhat prominent.

CLAVELLA, Swains. CLAVILITHES, Swains.

1. *C. humerosa*, Pl. xv., fig. 2.—Fusiform, volutions eight? rounded; body whorl and penultimate entire, the others with broad rounded ribs; whorls carinated below the suture and with revolving lines, most prominent towards the apex; body whorl and penultimate, channelled above and contracted near the summit; body whorl angulated inferiorly; beak long and straight.

2. *C. varicosa*, Pl. xvi., fig. 7.—Fusiform, spire and beak elongated; whorls nine, with distant, rounded, thick ribs and with revolving acute lines, which are obsolete or less prominent on the ventricose portion of the body whorl; papillated apex formed of three volutions; columella nearly straight, and with microscopic cingitudinal lines.

C. Mississippiensis, Pl. xvii., fig. 8, is probably the same species.

MITRA, Humph. Lam.

Subgenus LAPPARIA, Conrad.

Short-fusiform, spinous; apex papillary; beak very short, thick, twisted; plaits as in Mitra.

M. (Lapparia,) *dumosa*, Pl. xv., fig, 4.—Short-fusiform, volutions seven, direct, obliquely flattened above, with a series of transversely compressed, distant spines on the two largest whorls; on the contiguous whorl they become nodules; two whorls below the apex papillary, smooth; the next two longitudinally ribbed, and the others longitudinally striated or with prominent lines of growth; whole surface with revolving wrinkled lines; plaits four; beak profoundly ridged.

CONUS, Lin.

C. tortilis, Pl. xv., fig. 5.—Ovato-turbinate; spire obtusely conical with the apex exserted, acute; whorls obliquely flattened, with revolving impressed lines and transverse wrinkles, carinated near the base, direct between the carina and suture; lines of growth on body whorl profoundly curved; base with a profound thick fold.

Differs from *C. saurodens*, Con., in having a more prominent and convex spire, in the large twisted callus at base, &c.

ROSTELLARIA, Lam.

1. *R. velata*, Con., Pl. xv. fig. 7. *R. Lamarckii*, Lea, Cont. fig. 164.

2. *R. staminea*, Pl. xvi. fig. 9.—Fusiform, spire elongated, subulate above; whorls fifteen; body whorl slightly concave with fine closely-arranged revolving lines, and obsolete longitudinal undulations; three upper whorls with curved longitudinal acute ribs; the remainder covered with a polished calcareous deposit, and excavated at the suture; body whorl angular on a line with the upper margin of the aperture; labrum thin; beak slightly curved.

This species occurs at Claiborne in great abundance.

VOLUTALITHES, Swains.

1. *V. symmetrica*, Pl. xv., fig. 8.—Subfusiform; with longitudinal acute ribs terminating above in short spines on the body whorl; volutions excavated above, where they are striated but not ribbed; body whorl with raised alternated revolving distinct lines; above the angle they become almost microscopic; suture margined below by a series of small points, and somewhat carinated; plaits three, slender.

Allied to *V. Sayana*, Con.

NATICA, Lam.

N. permunda, Pl. xvi., fig. 2.—Suborbicular; body whorl somewhat excavated near the suture; spire very short; umbilicus very long, profound, with a central broad rounded ridge, and the lower margin subcarinated; columella subrectilinear.

APORRHAIS.

Subgenus PLATYOPTERA, Conrad.

Shell with a profoundly expanded labrum which is entire, or without a rostrum, and with the margin very thin and acute.

A. (*P.*) *extenta*, Pl. xvi., fig. 3.—Shell independent of labrum fusiform, with prominent revolving rounded lines and intermediate fine lines, from one to three, and longitudinal microscopic lines; volutions rounded, covered towards the apex with a polished calcareous deposit; labrum within with impressed radiating lines, becoming well marked furrows towards the base.

MITRA.

Subgenus FUSIMITRA, Conrad.

Elongate-fusiform, smooth and polished with impressed revolving lines; aperture narrow; plaits two prominent, and two obsolete, or much smaller than the others; beak elongated.

To this subgenus belongs *M. conquisita*, Con., *M. Mississippiensis*, and Con., of the Vicksburg deposit.

M. (*Fusimitra*) *Mellingtoni*, Pl. xvi. fig. 5.—Profoundly elongated, fusiform; volutions ten, convex, six of which towards the apex have revolving impressed lines, with the interstices transversely striated; in the contiguous whorl they are distant and obsolete, except near the summit, where there are two distinct impressed lines; on the penultimate whorl one distinct impressed line, and the summit of the body whorl obtusely carinated; spire longer than the aperture, which is narrow; plaits four, the two superior ones very prominent, robust.

Allied to *M. conquisita*, but much larger, proportionally longer, and with the striæ less deeply impressed. It may prove, however, to be the same when many specimens from the two localities can be compared. If it should be identical with the former it is the only species common to the Vicksburg and Jackson deposits out of 40 species of the latter and 100 of the former deposit.

CARICELLA, Con.

1. *C. subangulata*, Pl. xv. fig. 8.—Turbinate; labrum expanded; shoulder subangulated; body whorl flattened above; spire short, conical, consisting of 4½ volutions, with microscopic revolving lines near the apex; columella with four remote plaits, the two inferior ones most oblique.

2. *C. polita*, Pl. xvi. fig. 4.—Fusiform; smooth and polished, with revolving lines inferiorly, and on two volutions of the spire; the whorl above is papillary and smooth; columella with closely arranged microscopic longitudinal lines; plaits four, slender, prominent, remote; beak slightly curved.

Allied to C. but proportionally shorter and very distinct.

SCALARIA, Lam.

S. nassula, Con., Pl. xvi. fig. 6.—Foss. Shells of Tert. Form.

This shell, though much larger than the Claiborne specimens, specifically agrees with them. Probably Lea's *S. planulata* is the same species.

ARCHITECTONICA, Bolton. SOLARIUM, Lam.

1. *A. acuta*, Pl. xvii. fig. 1.—Much depressed, very thin and acutely carinated on the margin; convex above, lower half of the whorls somewhat excavated; revolving striæ linear, crenulated, with a minute intermediate crenulated line, and a still finer line or two in some of the interstices; base convex, flattened and somewhat excavated towards the periphery, revolving striæ linear, alternated with a medial smaller line and two minute ones, nearly smooth, except four from the umbilical margin, which rapidly increase in size towards the inner margin; the marginal line profoundly crenulated; a carinated beaded line on the middle of each whorl within the umbilicus, which is profoundly scalariform.

2. *A. bellastriata*, Pl. xvii. fig. 2.—Discoidal, with radiating impressed lines, which frequently bifurcate and are most profound at the suture; whorls of the spire carinated below near the suture; periphery acutely carinated, margined above by two approximate raised lines, and below by a prominent line which is slightly marked by a microscopic impressed line; base with three impressed lines, that nearest the umbilicus profound; radiating striæ interrupted by the revolving lines; base convex towards the periphery and concave towards the umbilicus.

GASTRIDIUM, Sow.

G. vetustum, Con., Pl. xvii. fig 4. Proceed. Acad. Nat. Sc., vol. 6, p. 321.
The Jackson specimens of this species, being more perfect than those of Claiborne, Alabama, exhibit six or seven denticulations below the tooth on the labrum, which denticle is very short; the base of the shell is carinated, and an acute carinated line runs within the umbilicus near the outer margin.

CYPRÆA, Lin.

1. *C. pinguis*, Pl. xvii., fig. 3.—Obtusely ovate, rounded at base, but obliquely flattened towards the aperture which is very narrow and denticulato-striate on both sides; columella deeply indented near the base, and a dentate line on the margin; labrum excavated towards the base.
Allied to *C. sphæroides*, Con., of Vicksburg, but much less ventricose and very distinct.

Subgenus CYPRÆDIA, Swains.

2. *C. fenestralis*, Pl. xvii., fig. 5.—Ovate, ventricose, decussated with acute, prominent, distant lines, the transverse ones alternated in size; interstices with microscopic lines parallel to the transverse ones; aperture narrow, much curved above; columella with four or five plaits.
This beautiful species is nearly allied to *C. elegans*, Desh., but is much broader, and has microscopic regular lines which are not mentioned in the description of the former, and it is probably destitute of them. The plaits on the columella of the Jackson shell are much larger than in its European relative. These two shells are so different from any in the more recent formations that they appear to be entitled to a generic distinction, and they are peculiar to the Eocene period.

PHORUS, Mont.

P. reclusus, Pl. xvii., fig. 6.—Trochiform; whorls seven, obliquely flattened on the sides; base flattened, slightly excavated near the periphery, striated; lines profoundly curved, wrinkled, acute, many of them minutely beaded; base partially covered with a polished calcareous deposit.

GALEODIA, Link. CASSIDARIA, Lam.

G. Petersoni, Pl. xvii., fig. 9.—Obtusely ovate, spire short, scalariform; body whorl with three distant revolving lines much larger than the others, which are alternated, suture margined by a prominent acute line; inferiorly three revolving lines larger than the others; lower whorl of the spire carinated in the middle; longitudinal wrinkled lines very fine: labrum margin thickened, somewhat reflected; inner margin denticulato-striate, with a prominent tooth near the upper extremity; labrum reflected; columella striated, inferiorly tuberculato-striate.
Approaches *G. funiculosa* (*cassidaria*) Desh., but very distinct.

PAPILLINA, Con.

Pyriform; shoulder angular and spinous; beak long, with an obtuse fold on the columella; three volutions from the apex forming a papillated summit.
P. Mississippiensis, Pl. xvii., fig. 10.—Fusiform, with a series of distant, very prominent spines and longitudinal undulations; revolving lines prominent, alternated, wrinkled and undulated; three volutions from the apex entire, and forming the papillary top; fold on the columella obtuse; beak slightly tortuous.
In the geology of Mississippi where the shell is figured, I have incorrrectly referred it to the genus *Clavelithes*. To this genus *Papillina* belongs the Eocene species, *Fusus papillatus*, Con., of Claiborne. I have never met with a species of this genus in the Miocene or more recent formation. It is probably most nearly related to *Turbinella*.

TURRITELLA, Lam.

T. alveata, Pl. xvii., fig. 7.—Elongated; whorls about nineteen; revolving lines prominent, about six in number alternated with a minute line; volutions excavated at base and minutely striated.

Allied to *T. obruta*, Con., (*T. lineata*, Lea,) of Claiborne, but greatly more elongated.

Polyparia.

ENDOPACHYS, Lonsdale.

1. *E. expansum.*—Cuneiform, dilated, much compressed on the sides; middle ventricose with two prominent ribs; end margins straight, direct, obliquely truncated inwards inferiorly; medial ridge tapering gradually to the base, which is thickened in the middle; surface regularly and beautifully granulated.

Locality. Jackson, Miss. Claiborne, Alabama.

2. *E. triangulare.*—Triangular; sides a little undulated on the margin and tapering towards the middle of the base, which is thickened, truncated and rounded, medial elevation very wide, rounded, with two prominent ribs; sides excavated and suddenly compressed near the margins, which are acute; granulations in form of radiating striæ.

Locality. Occurs with the preceding.

The sides between the ribs and the depression are convex, and when perfect have probably a rib on the middle.

3. *E. alticostatum.*—Cuneiform, subtriangular; medial elevation tapering gradually to the base, which is thick and irregularly rounded; ribs two, profoundly elevated, compressed; lateral depressions profound, margins acute, oblique; surface densely and minutely granulated; base truncated or obtusely rounded.

Locality. Claiborne, Alabama.

FLABELLUM, Les.

F. Wailesii.—Triangular or cuneiform, concentrically somewhat undulated; periphery irregularly subcarinated, sides plano-convex, subcostate, with impressed radiating lines, many of them bifurcated; lamellæ unequal, three smaller between each of the larger ones; sides with longitudinal tuberculated striæ.

Locality. Jackson, Miss.

OSTEODES, Conrad.

Form of Turbinolia; transversely oval; lamellæ numerous, anastomosing or branched; centre composed of small, angular cells; submargin with similar but smaller cells; cellular or bone-like structure characterising the sides beneath the surface.

Very distinct from *Turbinolia* or *Turbinolopsis*. To this genus belong my *Turb. cyanthus*, from near City Point, Virginia, in the older Eocene; and *T. caulifera*, newer Eocene, Vicksburg.

O. irroratus.—Conical, sometimes elongated, recurved, transversely oval; sides with closely arranged, acute, prominent, densely-granulated striæ; lamellæ numerous and finely granulated.

Locality. Occurs with the preceding.

TURBINOLIA.

T. lunulitiformis.—Obtusely conical, with acute, prominent, densely granulated ribs; lamellæ numerous, unequal, finely granulated, three smaller between the larger ones; periphery profoundly indented by the prominence of the ribs.

Locality. Occurs with the preceding.

The Corresponding Secretary read his report for Dec. 1854, and Jan., 1855, which was adopted.

The Society then proceeded to an election for Standing Committees for 1855, with the following result:

Ethnology, John S. Phillips, B. H. Coates, J. Aitken Meigs; *Comparative Anatomy and General Zoology*, Joseph Leidy, Edward Hallowell, Jno. H. Brinton; *Mammalogy*, John Le Conte, James C. Fisher, Jno. L. Le Conte; *Ornithology*, John Cassin, Edward Harris, Geo. A. McCall; *Herpetology and Ichthyology*, Edward Hallowell, John Cassin, Gavin Watson; *Conchology*, T. A. Conrad, T. B. Wilson, Chas. E. Smith; *Entomology and Crustacea*, Wm. S. Zantzinger, R. Bridges, John A. Guex; *Botany*, R. Bridges, Wm. S. Zantzinger, Elias Durand; *Geology*, Isaac Lea, Chas. E. Smith, Jno. L. LeConte; *Mineralogy*, Wm. S. Vaux, S. Ashmead, F. A. Genth; *Palæontology*, Thomas B. Wilson, Joseph Leidy, Aubrey H. Smith; *Physics*, James C. Fisher, B. H. Rand, Fairman Rogers; *Library*, R. Pearsall, S. Weir Mitchell, H. C. Hanson; *Com. on Proceedings*, Wm. S. Zantzinger, Joseph Leidy, Geo. A. McCall.

ELECTION.

Dr. William Hunt, of Philadelphia, was elected a *Member* of the Academy.

February 6th.

Vice-President BRIDGES in the Chair.

The following paper, intended for publication in the Journal, was presented:—"Notice of Fossils from the Carboniferous Series of the Western States, belonging to the genera Spirifer, Bellerophon, Pleurotomaria, Macrocheilus, Natica and Loxomena, with descriptions of eight new characteristic species: by Joseph G. Norwood and Henry Pratten, of the Illinois Geological Survey." Referred to Dr. Leidy, Mr. Isaac Lea, and Dr. Wilson.

February 13th.

Vice-President BRIDGES in the Chair.

A letter was read from Dr. Henry G. Dalton, dated Georgetown, Demerara, British Guiana, Dec. 28th, 1854, transmitting a copy of his recent work on that country.

Also, a letter from the Zoological Society of London, dated 31st October, 1854, acknowledging the receipt of the Journal and Proceedings of the Academy.

Mr. Conrad presented for publication in the Proceedings three papers severally entitled "Descriptions of eighteen new Cretaceous and Tertiary Fossils," "Descriptions of eight new species of Cretaceous Shells from Texas, in the collection of Major Emory," and "Description of a new species of Melania;" which were referred to Mr. Cassin, Dr. Carson and Mr. Foulke.

February 20th.

Vice President BRIDGES in the Chair.

A letter was read from Dr. George Dock, dated Harrisburgh, Penna. accompanying the donation from him acknowledged this evening.

Dr. Le Conte presented a paper for publication in the Proceedings, entitled "Synopsis of the Pyrochroides of the United States:" which was referred to Mr. Guex, Dr. Zantzinger and Mr. Cooke.

Mr. Cassin presented a paper for publication in the Proceedings entitled "Notes on North American Falconidæ, with descriptions of new species." Referred to Dr. Wilson, Col. McCall and Dr. Henderson.

Mr. Isaac Lea exhibited a specimen of the tanned skin of the Walrus. It consists only of the cutis vera, and is one inch and three-sixteenths in thickness. It was manufactured near Hull, and is used for polishing cutlery.

Mr. Cassin remarked with reference to the specimen of Crex pratensis presented this evening, that it was the first he had ever known to be obtained on the continent of America, and the species is another to be added to the list of accidental visitors from Northern Europe. Of this description of stragglers, the European Widgeon and the European green-winged Teal most frequently occur, but no specimen of a land bird had ever come under his observation, the present specimen being the nearest approach to it. This specimen he had been assured by Mr. Patterson, who presents it this evening, was shot in the vicinity of Salem, N. J., and was prepared by him from the recently killed bird.

February 27th.

COL. MCCALL in the Chair.

The Committees to which were referred papers by Mr. Conrad, read February 13th, by Dr. LeConte, read February 20th, and by Mr. Cassin, read same date, reported in favor of publication in the Proceedings.

Descriptions of eighteen New Cretaceous and Tertiary Fossils, &c.

By T. A. CONRAD.

Cretaceous Species.

BACULITES.

Baculites annulatus.—Subcylindrical, ribbed; ribs annular, some of them robust, flattened, remote, and generally partially sulcated or bifurcated, the intermediate ribs narrower and less prominent; septa bifurcating in two long equal branches, with intermediate comparatively short segments, the foliations very acutely angulated.

Locality.—Dallas County.

HAMITES.

1. *H. larvatus.*—Ovate-oval, obliquely ribbed; back rounded, the opposite side truncated; ribs obsolete on the back, prominent and acute laterally, and increasing in elevation alternately towards the back, where they are truncated

and form two series of salient angles or tubercles; intermediate rib nearly equal in size, rounded on the submargin of the back, entire. (A cast.)
Locality.—Dallas County.

2. *H. rotundatus.*—Rounded; ribs distant, acute, the intervening spaces regularly and profoundly concave; back flattened, with the ribs obsolete and three indistinct longitudinal lines. (Cast.)
Locality.—Dallas County.

ANCYLOCERAS? D'Orbigny.

A. approximans.—Rounded; ribs acute, oblique, prominent, alternated or bifurcated at the larger end, where there are two distant series of remote tubercles, which are not transversely opposite each other.
Locality.—Arkansas. Prof. Thomas.

CRIOCERAS, D'Orbigny.

C. (Ammonceras) *Conradi*, Morton.—This species was described from a single specimen found at Walnford, Ocean Co., N. J. I have since obtained another through the kindness of Miss Waln. It characterizes the lowest part of the cretaceous series.

CAPRINA.

C. quadrata.—Transverse subquadrate, three of the sides flattened, slightly furrowed in the middle.
Locality. Alabama. Jos. Jones.

CARDIUM.

Subgenus PROTOCARDIA.

Cardium Arkansense.—Cordate, profoundly ventricose, inequilateral; umbo and summit very prominent; disk with minute radiating lines; posterior side cuniform, extremity nearly at equal distance between beak and base.
Locality.—Arkansas. Prof. Thomas.

Eocene polyp.

DENDROPHYLLIA?

Subgenus PETROPHYLLIA, Conrad.

Corallum not cellular, but in layers like the coats of an onion; branches anastomosing; central axial star having distant septa between the lamellæ.

D.? (*Petrophyllia*) *Arkansensis.*—Corallum minutely granulated, suboval, sides faintly marked with vermicular lines; calicles round, not very prominent, unequally distributed, proximate or remote; lamellæ minutely serrate.
Locality.—White River, Arkansas. Prof. Thomas.

Madrepora vermiculosa, Con., belongs to the genus Dendrophyllia, but not to the above subgenus.

Eocene multivalves.

CHITON.

1. *C. antiquus.*—Terminal valves subtriangular, acutely rounded at base or subangulated, punctate, and with minute radiating impressed lines.
Locality.—Claiborne, Alabama.
This species is named in the Appendix to Morton's "Cretaceous group," but the description is now first published.

2. *C. Eocenensis.*—Terminal valve rather acutely rounded at base; ribs 18 or 19, rounded, unequal, a few divided by an impressed line nearly their entire length, a few divided only near the base; surface obsoletely punctate or granulated.
Locality.—Claiborne, Alabama.
These two species are only known by their terminal valves, and are very rare.

Miocene Species.

ANOMIA, Lin.

A. subcostata.—Obtusely ovate from base to back; lower valve thick, with interrupted somewhat tubercular radii; upper valve thin, radii obsolete or wanting. Height 1½ in.

Locality.—Colorado Desert. Dr. Heermann. Shell silicified.

OSTREA, Lin.

O. Heermanni.—Very irregular in form, thick, ovate and subfalcate, often dilated; lower valve shallow, the exterior very irregular, with large distant angular radiating ribs, and with pits or cavities; cartilage pit broad and oblique; upper valve flat or concave, with a profoundly irregular surface. Height 6 inches.

Locality.—Colorado Desert. Dr. Heermann. Shell silicified.

MERCENARIA, Schum.

M. perlaminosa.—Obliquely-cordate, very inequilateral, with numerous, prominent, recurved, lamelliform, concentric ribs; lunule cordate, not deeply impressed; posterior margin truncated, direct; within purple from the pallial impression to the base; margin finely crenulated.

Locality.—California. Dr. Heermann.

Allied to *M. Dunstellii*, Con., of the New Jersey Miocene.

PECTEN, Lin.

P. Heermanni.—Suborbicular, thin, compressed; ribs about 21, square, smooth; ears moderate in size.

Locality.—California. Dr. Heermann.

Allied to *P. eboreus* of the Virginia Miocene, but very distinct. Only two inferior valves were obtained. They are slightly convex.

DIADORA, Gray. CEMORIA, Leach.

C. crucibuliformis.—Oval; height about two-thirds of the length; apex central, curved towards the anterior margin; ribs 20 or 21, distant, narrow, prominent; interstices with each a fine line.

Locality.—California. Dr. Heermann.

Many authors adopt Leach's name for this genus, but I suppose it was unpublished at the time Gray's appeared.

PANDORA.

P. bilirata.—Oblong, very inequilateral, contracted anteriorly, convex medially; posterior side with two distant carinated lines towards the hinge margin which is straight and not oblique; posterior extremity truncated.

Locality.—Occurs with the preceding.

CARDITA.

C. occidentalis.—Subtriangular, equilateral? ventricose; ribs 15, rounded, wider than the interstices, and regularly granulated by transverse lines.

Locality.—Occurs with the preceding.

Allied to *C.* ———, of the San Pedro recent formation, but proportionally more elevated and having more prominent granules.

ASTARTE, Sow.

A. Thomasii.—Triangular, not ventricose, inequilateral; ribs concentric, robust, recurved; concentric lines more or less marked, minute; towards the posterior end the ribs suddenly become obsolete; extremity truncated, nearly

direct, or sloping inwards; inner margin crenulated; lunule large, ovate, acute, deeply excavated.

Locality.—Near Mullica Hill. Prof. Thomas.

TURRITELLA.

T. secta.—Turrited; volutions flattened or plano-convex at the sides, with minute obsolete revolving lines, a few of which are larger than the others and remote; whorls subcarinated near the base and profoundly excavated beneath towards the suture.

Locality.—Occurs with the preceding. Prof. Thomas.

Descriptions of one Tertiary and eight New Cretaceous Fossils from Texas, in the Collection of Major Emory.

By T. A. CONRAD.

ROSTELLITES, Conrad.

Univalve, elongated, with an expanded labrum, and having numerous oblique plaits on the columella.

This genus is related to APORRHAIS, but differs in having a plaited columella. The entire shell or cast has never been obtained, and the outline cannot be determined.

Rostellites Texanus.—Narrow, elongated, with a subulate spire; plaits oblique, narrow, acute, largest above, and becoming obsolete towards the base; whorls of the spire flattened on the sides.

Locality.—Eagle Pass.

The description was made from a cast, with only traces of the shell remaining, the substance of which appears to have been thick. A large portion of the flattened columella remains. The cast is associated with *Cardium congestum.*

TURRITELLA, Lam.

Turritella irrorata.—Slightly turrited, subulate, elongated; whorls with four to five fine revolving unequal beaded lines on each, and an intermediate smooth minute line.

Locality.—Between El Paso and Frontera?

This shell differs from *T. seriatim-granulata,* Roemer, in having much finer lines and tubercles, and in having a smooth line between each of the beaded ones. It is associated with *Nodosaria occidentalis,* the very small *Venus quinquecosta,* and the little *Corbula occidentalis.* It is imbedded in a highly fossiliferous, ferruginous, indurated clay, which appears to have been obtained from the same bed with *Cardium Texanum.*

CAPRINA.

1. *Caprina planata.*—A fragment of one valve two feet or more in length, and another smaller fragment represented in the figure. Flattened on one side and convex on the other, a much compressed outline; the shell is very long and narrow, falcate, fibrous, and distinctly exhibiting the small septa as they occur in the genus CAPRINA. The cavities between the septa are lined with crystals of carbonate of lime, and the shell is imbedded in white friable limestone resembling chalk marl.

Locality.—Oak Creek, near Puercos.

2. *C. occidentalis.*—Falcate; flattened on the side of the outer curve, convex on the opposite; the other margins acutely rounded; surface very obscurely striated transversely; substance coarsely fibrous.

Locality.—Near the mouth of Puercos River, Texas. A. Schott.

The matrix of this shell resembles chalk marl.

NEITHEA, Drouet.

Neithea occidentalis.—Ovato-triangular, angulated; lower valve inflated, unequally ribbed and concentrically lined, lines very fine; large ribs five, rounded and elevated; smaller ribs equal, two in number in each of the intervals between the larger ribs, which latter have on each side a raised line or fine rib, giving it a trifid character; right valve flat, subconcave.

Pecten quadricostatus, *var.* Roemer. Kreid von Texas, p. 64, pl. 8, fig. 4.

This species differs from *N. quadricostata* in having but two equal ribs between the larger ones, whilst that species has three corresponding ribs, and it is also proportionally a narrower or more elevated shell. There is quite as much difference between the two as between *N. quadricostata* and *N. quinquecostata*.

MACTRA, Lin.

Mactra Texana.—Triangular, ventricose, subequilateral; anterior extremity subangulated and slightly produced, much above the line of the base, which is regularly and profoundly curved; posterior margin obliquely truncated, extremity angulated; anterior margin straight and very oblique; umbo prominent.

Locality.—Prairie between Laredo and Rio Grande City, Texas.

This species occurs only in casts, and is placed with doubt among the cretaceous fossils.

EXOGYRA, Say.

1. *E. fragosa.*—Orbicular, lower valve ventricose posteriorly, flattened anteriorly; ribs very large, prominent, irregular, some of them bifurcated; umbo not prominent, small, flattened, inner margin rugose-striate. Differs from *E. ponderosa*, Roem., in its large ribs, small umbo, &c.

Locality. Between El Paso and Frontera. Major Emory.

2. *E. fimbriata.*—Upper valve. Very thick, profoundly convex, with ten or twelve distant concentric imbricated lamina.

Locality. Texas. Major Emory.

Tertiary Species.

O. contracta.—Subfalcate, elongated; cavity shallow and remarkably contracted near the hinge. Length nearly two feet.

Locality. Oyster point, near Mier, Mexico.

Description of a New Species of Melania.

By T. A. Conrad.

Melania exigua.—Turrited; volutions 8, disposed to be angulated and somewhat scalariform above, cancellated, longitudinal lines wanting on the lower half of the body whorl; columella reflected; aperture elliptical. Length one-fifth of an inch.

Locality.—Colorado desert, California. Dr. Le Conte.

The specimens are numerous and of a chalky whiteness, showing that they are all dead shells. Said to have been found one hundred and twenty miles distant from any stream passed in the route. I am indebted to Dr. Caspar Parkinson and Mr. Mactier for specimens.

Synopsis of the Pyrochroides of the United States.

By JOHN L. LE CONTE, M. D.

The definition under which I include the native genera below mentioned, some of which have been widely separated by preceeding authors, may be thus expressed.

Coleoptera heteromera, capite postice coarctato, collo distincto thoraci affixo; oculis emarginatis præcipue magnis; abdomine articulis 5 vel 6 liberis, parapleuris parallelis; coxis anticis contiguis conicis, acetabulis postice imperfectis; tarsis articulo penultimo sæpissime calceato vel emarginato, unguibus iam ad basin dentatis, iam simplicibus, raro appendici basali elongata (sicut in Meloidis pluribus) instructis.

Thus the group differs from Anthicidæ by the emarginate eyes and parallel parapleuræ; while dentate or appendiculate ungues are not found in that family.

In Lagriariæ the anterior acetabula are closed posteriorly and the coxæ are small; the head too is hardly constricted.

Our genera may be thus arranged:

A. Collum crassum: tarsi articulo penultimo emarginato: ungues simplices: abdomen 5-articulatum.

Palpi maxillares articulo ultimo dilatato, triangulari	Eurygenius *Ferté*
Palpi maxillares articulo ultimo elongato, cultriformi	Stereopalpus *Ferté*

B. Collum tenue, tarsi articulo penultimo lobato, abdomen 5-articulatum, articulo 1mo longiore: ungues dente magno armati.

Antennæ articulis 3 ultimis maioribus, elongatis	Macratria *Newman*

C. Collum tenue; tarsi articulo penultimo præcipue lobato: abdomen articulo 1mo haud longiore: palpi maxillares articulo ultimo longiore.

† Ungues dente magno armati: abdomen ♂ 6-articulatum — Pedilus *Fischer*

†† Ungues vix dentati; abdomen ♂ 6-articulatum, ♀ 5-articulatum.

Ungues haud appendiculati: tarsi lobati.

Oculi distantes

Palpi maxillares articulo ultimo subtriangulari	Pyrochroa *Fabr.*
Palpi maxillares articulo ultimo ovali	Schizotus *Newman*
Oculi maximi approximati	Dendroides *Latr.*

Ungues appendice filiformi elongata instructi: tarsi filiformes. — Nematoplus *Lec.*

D. Collum tenue; ungues simplices minuti; palpi articulo valde dilatato: abdomen 5-articulatum, articulo 1mo haud longiore. Xylophilus *Bon.*

EURYGENIUS Ferté.

1. E. Wildii, niger breviter nigro-hispidus, capite thoraceque densissime pubescentibus, hoc canaliculato, campanulato, latitudine non longiore, elytris pube sordida subvittatis. Long. ·42.

Kentucky: a fine specimen of this species was recently given me by Mr. J. P. Wild, of Baltimore, to whom I dedicate it with great pleasure, as a slight testimony of my appreciation of his great energy and success in collecting similar objects.

Larger than the following species. The head and thorax are very densely clothed with brownish grey hair, with scattered suberect black hairs, and are confluently punctured: the former is finely channelled between the eyes. The thorax is subcordate, not longer than wide, canaliculate, much rounded on the sides before the middle, with the anterior constriction distinct. The elytra are one half wider than the thorax, densely and coarsely punctured, with short black hairs proceeding from each puncture; they are irregularly mottled with dense brownish grey pubescence, with four narrow blackish vittæ on each. Beneath densely covered with grayish hair.

2. E. murinus, niger breviter nigro-hispidus, cinereo-pubescens, thorace

subcampanulato, latitudine longiore, canaliculato, elytris gutt's cinereo-pubescentibus variegatis. Long. ·38.

Le Conte, Ann. Lyc. of New York. 5, 152.

Ichthydion? murinum Hald. Proc. Acad. Nat. Sc. 1, 304.

Georgia and Alabama, rare. Black, uniformly covered with ashy hair, and with scattered short suberect bristles. Head and thorax confluently punctured, channeled: the latter one third longer than wide, rounded on the sides before the middle, very slightly narrowed behind; anterior constriction moderately distinct; elytra one half wider than the thorax, coarsely and densely punctured, variegated with small spots of more dense ashy pubescence.

Although Prof. Haldeman's description is long anterior to the date at which the present genus was established, he unfortunately did not give any generic character, and I was therefore compelled to change the name given by him.

3. E. constrictus, ater elongatus, cinereo-pubescens, longe griseo-hispidus, thorace campanulato, latitudine longiore, elytris guttis cinereo-pubescentibus variegatis. Long. ·35—·4.

Le Conte, Ann. Lyc. of New York, 5, 151.

San Diego, California. Narrower than the preceding, covered both above and beneath with ashy pubescence and long erect gray hairs: head and thorax confluently punctured, not channeled: the latter is nearly one half longer than wide, rounded on the sides anteriorly, a little narrowed behind, with the anterior constriction very distinct. Elytra one half wider than the thorax, densely and coarsely punctured, variegated with spots of denser cinereous hair.

Sterropalpus Ferté.

1. S. Melly i, elongatus, fusco-olivaceus, subtiliter cinereo-pubescens, capite thoraceque nigricantibus, hoc campanulato canaliculato, latitudine longiore, pedibus ferrugineis. Long. ·28.

La Ferté, Anthic. 5, cum tab.

South Carolina, Dr. Zimmerman: the detailed description of La Ferté leaves nothing to be added: from the following species it is easily distinguished by its narrower form and canaliculate thorax.

2. S. badii pennis, fuscus subtiliter dense cinereo-pubescens, capite thoraceque nigris hoc campanulato, latitudine fere breviore, elytris badio-testaceis, pedibus ferrugineis. Long. ·35.

Michigan. Body dark brown, covered with fine cinereous pubescence: head and thorax confluently punctured, black: the line between the eyes faint: thorax scarcely wider than long, rounded on the sides anteriorly, then obliquely narrowed to the base, slightly impressed each side at the middle: anterior constriction short, distinct only at the sides: elytra wider than the thorax, coarsely punctured, the punctures smaller towards the tip; light yellowish brown. Feet reddish yellow: first joint of the antennæ brown.

3. S. guttatus, æneo-niger, cinereo pubescens, thorace campanulato, subtiliter canaliculato, latitudine vix longiore, elytris guttis cinereis variegatis. Long. ·3.

Two specimens found at Fort Laramie, in Nebraska territory. Black, slightly bronzed, finely pubescent: head and thorax confluently punctured, the latter not longer than wide, rounded on the sides in front, then obliquely slightly narrowed to the base, finely canaliculate, with a slight impression each side at the middle: anterior constriction short, deep. Elytra densely and coarsely punctured, one half wider than the thorax, variegated with numerous small round spots of dense whitish hair.

Although colored like the species of the preceding genus, the palpi terminate in a long cultiform joint.

Macratria Newman.

Macrarthria Er. *Macrarthrius* Ferté.

The reason for changing the original name proposed for this genus is not

obvious; it has a meaning, and undoubtedly should not be altered so as to give it a different meaning, either for the sake of uniformity of termination (!) or for *any other reason whatsoever*, unless it can be shown to have been previously occupied.

1. M. murina, griseo-olivacea, dense sericeo-pubescens, thorace elliptico, capite fere latiore, elytris striatis, antennarum articulo ultimo longiore. Long. ·18.

Macrarthria murina Er., Bericht über, &c. Entom. 1838 (in Erichs. Archiv.)
Macrarthrius murinus Ferté, Mon. Anthic. 16.
Dirœa murina Fabr. Syst. El. 2, 91.

Middle and Southern States; common. Body covered with very dense sericeous yellowish hair. Head finely punctured, slightly convex, narrowed behind the eyes, and subtruncate: mouth and oral organs yellow. Antennæ with the second joint scarcely longer than the third: the following to the 8th are equal; 9th and 10th fuscous, pale at the tip, nearly as long as the two preceding united: thorax very little wider than the head, one half longer than wide, elliptical, margined posteriorly, finely scabrous. Elytra striate with fine punctures: interstices very finely scabrous. Legs varying from yellow to piceous; the anterior pair usually paler. The male has the 5th segment of the abdomen truncate, whereby the 6th becomes visible. In the female the 2nd segment is impressed transversely each side. In both sexes the first segment is conspicuously longer.

2. M. confusa, atra minus dense cinereo-pubescens, thorace elongato-ovato, capite non latiore, elytris vix seriat impunctatis, antennarum articulis 3 ultimis elongatis subæqualibus. Long. 18.

Two males. Georgia. Darker colored than the preceding, with less dense pubescence. Head finely and sparsely punctured, rounded posteriorly, with the occipital impression longer than in M. murina. Mouth and its organs yellow; antennæ with the 2nd joint scarcely shorter than the 3rd, 3—7 equal, 8th fuscous, a little shorter than the 7th; 9—11 fuscous, nearly twice as long as the 7th and 8th united, nearly equal, the 11th being a little longer. Thorax densely scabrous, not wider than the head, nearly twice as long as wide, disc subelliptical, a little narrowed behind, where it is margined. Elytra with punctures arranged in indistinct series, interstices scarcely scabrous or punctured. Feet piceous; base of anterior thighs rufous. First segment of abdomen hardly elongated.

The discovery of this second species within our territory seems to confirm the opinion of Ferté, that M. linearis *Newman*, (Entom. Mag. 4, 377,) is distinct from M. murina, though the great carelessness with which Newman's descriptions were made, should prevent us from placing reliance on them, in the absence of any corroborating circumstances. Newman's figure does not show the very strong basal margin of the thorax which exists in all the species of the genus, and where a character so evident has been omitted, we are prepared to expect any inaccuracy whatever, both in the outline and details of the figure.

PEDILUS Fischer.

1. P. punctulatus, niger tenuiter cinereo-pubescens, capite punctulato, collo confertim punctato, thorace transverso rotundato rufo nitido, subtiliter parce punctulato, elytris sat dense subtilius punctatis. Long. ·26—·32.

Variat capite fusco, elytris fusco-testaceis.

Mas, abdominis segmento quinto ventrali truncato, 6to conspicuo; elytris macula apicali pallida fere lævigata ad apicem impressa. Femina elytris concoloribus.

Le Conte, Ann. Lyc. of New York, 5, 151.
San Francisco, California, on flowers, in June.

2. P. collaris, niger tenuiter cinereo-pubescens, thorace transverso rotundato, rufo nitido, elytris parce rugosis, sat dense minus subtiliter punctatis, punctis postice minoribus, ad apicem fere obsoletis; antennarum basi palpisque piceis. Long. ·25.

Mas latet.

Anthicus collaris Say, Journ. Acad. Nat. Sc. 5, 246. (Corphyra) Say, Bost. Journ. Nat. Hist. 1, 189.
Pedilus rufithorax Newman, Ent. Mag. 5, 375.
Pedilus marginicollis (var)? Ziegler, Proc. Acad. Nat. Sc. 2, 47.
Pedilus infumatus? Lec. Journ. Acad. Nat. Sc. 2d, 1, 83.
(♀) *Anthicus terminalis* Say, Journ. Acad. Nat. Sc. 5, 247.
Middle States and New England.

3. P. lugubris, niger, cinereo-pubescens, thorace transverso rotundato, nitido, elytris parce rugosis sat dense minus subtiliter punctatis, punctis postice minoribus; antennarum basi palpis tarsisque piceis. Long. ·24—·33.
Mas latet.
Anthicus lugubris Say, Journ. Acad. Nat. Sc. 5, 246: (Corphyra) Say, Bost. Journ. Nat. Hist. 1, 189.
Pyrochroa infumata Hentz, Trans. Am. Phil. Soc. 3, 257.
Pedilus imus Newman, Ent. Mag. 5, 375: Lec. J. Ac. Nat. Sc. 2d, 1, 82.
Pyrochroa inornata Randall, Bost. Journ. Nat. Hist. 2, 23.
Pedilus nigricans Ziegler, Proc. Acad. Nat. Sc. 2, 46.
Middle States, New England and Lake Superior.

4. P. labiatus, niger, tenuiter cinereo-pubescens, capite parce subtiliter punctato, ore flavo, thorace parce punctulato transverso rotundato, rufo nitido, macula magna discoidali nigra, elytris rugosis confertim punctatis, punctis postice subtilioribus, coxis testaceis, tarsis palpisque piceis. Long. .29.
Mas, abdominis segmento quinto ventrali truncato, sexto conspicuo: elytris mox ante apicem fovea profunda rotundata impressis, sutura in spina brevi producta.
Femina elytris simplicibus.
Anthicus labiatus Say, Journ. Acad. Nat. Sc. 5, 247: (Corphyra) Say, Bost. Journ. 1, 189.
Pedilus marginicollis Ziegler, Proc. Acad. Nat. Sc. 2, 47.
Middle and Western States. The coxæ in one specimen are so dark as to appear almost piceous: the basal articulations of the antennæ are somewhat brownish.

5. P. pulcher, niger, tenuiter cinereo-pubescens, thorace rufo transverso rotundato, nitido, macula magna discoidali nigra, elytris confertim punctatis punctis postice minoribus, ore palpis, antennarum articulis duobus pedibusque rufis. Long. ·35.
Mas, abdominis segmento quinto ventrali truncato, sexto conspicuo: elytris ante apicem profunde foveatis.
Le Conte, Journ. Acad. Nat. Sc. 2d, 1, 84.
One specimen collected in Kentucky was given me by Prof. Haldeman.

6. P. impressus, niger nitidior, parce cinereo-pubescens, thorace transverso rotundato rufo, elytris minus dense punctatis ad apicem fere obsoletis. Long. ·21.
Mas abdominis segmento quinto ventrali truncato, elytris utrinque ad suturam prope apicem impressione profunda ovali ad apicem extensa.
Femina, elytris simplicibus.
Anthicus impressus Say, Journ. Acad. Nat. Sc. 5, 248: (Corphyra) Say, Bost. Journ. 1, 189.
Middle States. Resembles in color and general characters P. collaris, but the more shining and more coarsely punctured elytra will distinguish it. The base of the antennæ is sometimes piceous and sometimes black.

7. P. guttula, niger, nitidior, parce fere nigro-pubescens, thorace magis transverso, rotundato, rufo, elytris minus dense grossius punctatis, punctis versus apicem fere obsoletis. Long. ·20—·22.
Mas, abdominis segmento ventrali quinto truncato, sexto conspicuo: elytris macula communi rotundata, ad apicem pallida ornatis, et ad suturam leviter impressis. Femina elytris concoloribus.
Newman, Ent. Mag. 5, 375. LeConte, Journ. Acad. Nat. Sc. 2d, 1, 84.

?*Anthicus terminalis* Say, Journ. Acad. Nat. Sc. 5, 247: (Corphyra) Say, Bost. Journ. 1, 189

Middle States. The punctures of the elytra are even larger than in the preceding, but the form of body in this as in the two following is less slender, and the thorax is more transverse than in any above described. It is impossible to determine whether Say's description refers to the male of this or of P. collaris.

8. P. Newmani, niger, tenuiter fere nigro-pubescens, capite thoraceque nitidis, hoc magis transverso rotundato, elytris minus parce sat grosse punctatis, punctis postice minoribus. Long. ·25.

Mas abdominis segmento quinto ventrali truncato, sexto conspicuo; elytris ad apicem gutta communi pallida ornatis, ad suturam profunde impressis. Femina latet.

Pedilus lugubris‖ Newman, Ent. Mag. 5, 375.

One specimen, from Maine. The male of P. lugubris probably resembles this species very closely, but the finer punctures of the elytra and more distinct gray pubescence will enable it to be recognized.

9. P. elegans, cyaneo-niger, nitidior, subtilius fere nigro-pubescens, thorace magis transverso rotundato, flavo, elytris discrete punctatis, versus apicem fere lævibus, ore palpis pedibusque flavis, antennarum basi testaceis. Long. ·24—·3.

Mas, abdominis segmento quinto ventrali truncato, sexto conspicuo: elytris bulla apicali lævigata flava ad suturam leviter impressa ornatis. Femina elytris concoloribus.

♂ LeConte, Journ. Acad. Nat. Sc. 2d, 1, 84.

♂ *Pyrochroa elegans* Hentz, Trans. Am. Phil. Soc. 3, 275.

♂ *Pedilus hæmorrhoidalis* Ziegler, Proc. Acad. Nat. Sc. 2, 46.

♀ *Pedilus ruficollis* Ziegler, Proc. Acad. 2, 46. Lec. Journ. Acad. Nat. Sc. 2d, 1, 83.

Middle States.

10. P. fulvipes Newman, Ent. Mag. 5, 375. Unknown to me. The body is black and the feet yellow.

PYROCHROA Geoffroy.

1. P. flabellata, fulvo-testacea pubescens, elytris nigris subtiliter scabris, antennis nigris articulis duobus primis testaceis. Long. ·6—·67.

Mas, capite inter oculos late concavo, vertice transversim valde excavato, medio emarginato, et antice cornu brevi instructo: segmento abdominis ventrali quinto truncato sexto conspicuo emarginato: antennis modice pectinatis.

Fabr. Ent. Syst. emend. 2, 105. Syst. El. 2, 109.

Olivier, Ins. 53, tab. 1, fig. 3.

Middle States, not rare.

2. P. femoralis, nigra pubescens, elytris subtiliter scabris; capite thoraceque fulvo-testaceis nitidis, scutello, antennarum articulo primo, coxis femoribusque dimidio exteriore fulvo-testaceis, palpis piceis. Long. ·55—·66.

Mas capite inter oculos foveis duabus maximis profundis confluentibus, alterisque duabus parvis anticis; segmento ventrali 5to truncato, 6to conspicuo testaceo valde emarginato: antennis longe pectinatis.

Femina capite inter oculos transversim excavato; antennis breviter pectinatis.

Middle and Western States. The thorax is less transverse than in P. flabellata, and is not much wider than the head.

SCHIZOTUS Newman.

1. S. cervicalis, nigro-piceus cinereo-pubescens, fronte thoraceque rufis opacis, hoc capite sesqui latiore transverso rotundato, late canaliculato, inæquali, elytris subtiliter scabris sutura margineque anguste testaceis. Long. ·26—·32.

Mas capite foveis magnis maxime profundis duabus postice impressis; abdo-

minis segmento quinto ventrali truncato, sexto conspicuo subemarginato : antennis longissime ramosis. Femina latet.

Newman, Ent. Mag. 5, 375.

Lake Superior : found by Mr. Doubleday in Western New York.

Dendroides Latr.

1. D. canadensis, rufo-testaceus parcius pubescens, elytris discrete punctatis nigris, capite inter oculos fusco, thorace ovali latitudine fere longiore antrorsum attenuato, postice late foveato parce punctato, antennis piceis. Long. ·35 —·55.

Mas, oculis maximis fere contiguis ; abdominis segmento quinto ventrali truncato, sexto conspicuo emarginato : antennis longissime ramosis.

Femina, oculis magnis at bene discretis interstitio fusco-piceo punctato ; antennis modice pectinatis, ramis articulis haud longioribus.

Latreille, Consid. gén. (1810.)

Pogonocerus bicolor Newman, Ent. Mag. 5, 375.

Middle, Southern and Western States, not rare. The generic name given by Latreille, has two years priority over Pogonocerus of Fischer.

2. D. concolor, rufo-testaceus parcius pubescens, elytris discrete punctatis, capite parce punctulato, thorace latitudine longiore, antrorsum attenuato, fovea parva basali notato lævi, antennis fuscis basi testaceis. Long. ·46.

Sexus differentia sicut in L. canadensi.

Middle and Northern portions of the United States.

3. D. testaceus, saturate testaceus, parce pubescens, capite fere piceo punctato, parcius inter oculos, thorace latitudine haud longiore antrorsum attenuato parce punctulato, basi breviter canaliculato, elytris densius punctatis et rugosis. —Long. ·46.

Femina, oculis mediocribus, bene discretis, antennis serratis, extrorsum breviter pectinatis, ramis præcipue articulis brevioribus.

Mas latet.

One specimen from Lake Superior. Differs from the preceding by the more distant eyes, the broader thorax and the more densely punctured elytra ; the joints of the antennæ, from the 3d to the 6th are triangular, and the following are gradually more and more produced at the extremity. In D. concolor, the 6th joint is provided with a branch nearly as long as the seventh joint.

4. Pogonocerus ephemeroides Mann. Bull. Mosc. 1852, 348. Russian America ; unknown to me.

Nematoplus Lec.

Caput longe pone oculos subito constrictum, collo brevi crasso : palpi maxillares articulo ultimo ovali truncato, præcedente longiore ; labiales breves articulo ultimo ovali truncato, ligula emarginata ; mandibulæ apice bicuspidatæ. Antennæ fere filiformes, articulo 2ndo parvo, 3io 5to sequentibusque subæqualibus, 4to contiguis paulo longiore. Thorax capiti æqualis transversus, lateribus subangulatim rotundatus ; elytra thorace latiora parallela convexa, humeris prominulis, apice rotundata. Pedes tenues, tarsi elongati filiformes, ungues basi dilatati, at haud dentati, singulus appendice inferiore ungui ipsi fere æquali acuta apice incurva instructi, paranychio parvo distincto.

1. N. collaris, niger, capite opaco, punctulato canaliculato, thorace convexo rufo parce punctulato, canaliculato pone medium late excavato, transverso lateribus subangulato, elytris confertim rugose punctatis, lineis utrinque tribus obsoletis, ore flavo, palpis maxillaribus pedibusque piceis, artubus pallidioribus. Long. ·35.

Mas segmento ventrali abdominis quinto late emarginato, sexto lævi nitido apice truncato. Femina latet.

One specimen, Ann Harbor, Michigan. The form is like that of Eurygenius.

XYLOPHILUS Bonelli.

In this genus the third joint of all the tarsi is lobed beneath, and the fourth joint of the two anterior pairs is very small, and received upon the third. The proper place is still not well determined: among the Anthicides it cannot remain on account of the emarginate eyes.

1. X. Melsheimeri, elongatus, ater, longius cinereo-pubescens, capite postice recte truncato, thorace confertim punctato, quadrato, ad apicem angustato, elytris minus convexis cribratis, testaceis, limbo omni fasciisque dentatis tribus transversis nigris ornatis; antennis pedibusque piceo-testaceis, femoribus posticis obscuris. Long. ·10.

Mas, antennis articulo 3io elongato, sequentibus ramo longissimo interno ornatis, 4—11 sensim magis elongatis.

Femina antennis extrorsum paulo incrassatis, articulo 3io sequente vix longiore, 4—10 longitudine æqualibus, 11mo maiore et longiore.

York county, Pennsylvania; Messrs. Melsheimer & Ziegler. Although by the curious structure of the antennæ of the male this beautiful species differs from all the others below described, I can find no characters sufficient to cause it to be separated as a genus. The feet vary in color, being sometimes yellow, with only the posterior thighs fuscous: the antennæ of the female are yellow; the bands of the elytra are sometimes confluent, so that the elytra appear black with yellow spots. The head is wider than the thorax, and the elytra are elongate parallel, truncate at base, and nearly twice as wide as the thorax.

2. X. notatus, ater, parcius cinereo-pubescens, capite thoraceque opacis confertim punctulatis hoc quadrato, elytris thorace duplo latioribus convexis nitidiusculis sat grosse punctatis, guttis utrinque ante medium fasciaque lata pone medium flavis, antennis palpis pedibusque testaceis, femoribus posterioribus infuscatis. Long. ·08.

One specimen found in Habersham county, Georgia. The two rounded yellow spots before the middle of each elytron seem inclined to coalesce into a transverse fascia. The punctures of the elytra are most distant towards the tip.

3. X. piceus, nigro-piceus, cinereo-pruinosus, capite thoraceque confertissime punctulatis, opacis, hoc rotundato-quadrato, subtransverso, ad basim transversim impresso, elytris thorace duplo latioribus convexis, punctatis, ante medium versus suturam impressis. Long. ·08.

Middle and Southern States: no external sexual differences were perceived. The feet and antennæ are sometimes paler and almost testaceous.

4. X. fasciatus, niger nitidus, griseo-pubescens, capite thoraceque minus subtiliter punctatis hoc transverso quadrato, elytris duplo latioribus convexis, confertim punctatis macula maxima basali alteraque communi apicali fulvis; antennis palpis pedibusque rufo-testaceis. Long. ·12.

Melsheimer, Proc. Acad. Nat. Sc. 3, 55.

Euglenes fasciatus Haldeman, Journ. Acad. Nat. Sc, 2d, 1, 97.

Middle and Southern States. The difference between Euglenes *Westwood* and typical Xylophilus is not obvious.

5. X. signatus, testaceus, cinereo-pubescens, capite confertim punctato fusco, thorace quadrato punctato, latitudine sesqui breviore, elytris grossius confertim punctatis convexis, macula utrinque transversa sinuata nigra ad medium ornatis. Long. ·09.

Euglenes signatus Haldeman, Journ. Acad. Nat. Sc. 2d, 1, 97.

Middle and Southern States. The antennæ, as in the preceding, are gradually thickened externally, the joints from the 3d to the 10th gradually broader, the outer ones being transverse: the 11th is larger, ovoid, and acute at tip. The transverse black spot of the elytra is sometimes broken into two rounded dots.

6. X? basalis, longior ater opacus, pube fusca brevi erecta vestitus, capite thoraceque confertissime subtiliter punctatis, illo postice rotundato, hoc quad-

rato, antice rotundato, elytris minus convexis, thorace duplo latioribus cribratis, margine basali late fulvo: antennis hirsutis, articulo ultimo elongato. Long. ·13.

One specimen, Illinois, Mr. Willcox. The joints of the antennæ from the 3d to the 10th are nearly equal, and oblong in form: the 2d is a little shorter: the 11th is as long as the two preceding united, but is not thicker: the tip is somewhat acute. The palpi are rufous.

The form of the antennæ recalls Tanarthrus (Lec.) among the Anthicidæ, but the eyes are deeply emarginate, as in the other species of Xylophilus. The legs are unfortunately all broken off.

Notes on North American Falconidæ, with descriptions of new Species.

By John Cassin.

Since the time at which my Synopsis of the Falconidæ, inhabiting America north of Mexico, was published in the Proceedings of this Academy, (vi. p. 450, December, 1853,) and since, too, the publication of a more extended Synopsis in my Birds of California and Texas, several collections of high interest, containing numerous specimens of birds of this family have been made for account of the Government, principally by parties that have been engaged in surveying routes for a railroad to the Pacific Ocean. Various collections, containing birds of this family have, also, since the periods alluded to, been received by this Academy, in one of which from Greenland, there are specimens of *Hierofalco* of apparently two species, being the only mature American birds of this genus that I have ever seen.

In the present paper, I propose to notice additional localities of previously known species, with such other information as may have been derived from the collections alluded to, forming, in some measure, a continuation of my Synopses above cited. For an opportunity to examine the collections belonging to the Government, I am indebted to the officers of the Smithsonian Institution, in whose custody they are, and more particular descriptions and all information acquired will be published in the Reports of the officers who commanded the various expeditions.

1. Falco nigriceps, Cassin, B. of Cal. and Texas, 1. p. 87, (Dec. 1853.)

The most mature specimen that has ever come under my notice, is in the collection made by J. G. Cooper, M. D., one of the naturalists attached to the Hon. I. I. Stevens' Surveying party. It is labelled as having been obtained at Shoalwater Bay, Washington Territory, March 23d, 1854. The entire upper parts of the body are light bluish cinereous, with which color the head above is more decidedly tinged, than in the specimens originally described by me. The throat and neck in front are white, very faintly tinged with yellowish; other under parts white tinged with ashy and with transverse narrow bars of brownish black, (every feather having about six bars.) Frontal band pure white; under wing coverts pure white with brownish black transverse bars.

In this specimen, there is no trace of the pale yellowish red and circular black spots of the under parts which have appeared in all other specimens that I have seen.

2. Falco polyagrus, Cassin, B. of Cal., and Texas, 1 p. 88, (Dec. 1853.) pl. 16.

Adult specimens of this bird are in the collection made by Dr. Kennerly, who was attached to the surveying party under command of Lieut. A. W. Whipple, U. S. A., in New Mexico; also in those made by Dr. Cooper, of Gov. Stevens' party in Washington Territory, by Lieut. W. P. Trowbridge, U. S. A., in California, and by T. C. Henry, M. D., U. S. A., in New Mexico.

The original descriptions are from female specimens. Those above alluded to are all adults, and do not differ from my description and figure of the adult female in any material point, except that a male in excellent plumage and condition

in Lieut. Whipple's collection is smaller. Its dimensions are as follows:—Total length 16 inches, wing 12¼, tail 7 inches. The young male of this species is in Dr. Henry's collection, and differs from the adult only in being somewhat darker in color, though not so dark as the young female described by me as above.

3. HYPOTRIORCHIS FEMORALIS, (Temm.)

A fine specimen and the first ever noticed within the limits of the United States, is in the collection made by Dr. A. L. Heermann, who was attached to the surveying parties in charge of Lieuts. Williamson and Parke, U. S. A. It is an adult in fine plumage, and precisely identical with the South American bird. It was obtained in New Mexico.*

4. TINNUNCULUS SPARVERIUS, (Linn.)

Numerous specimens from various localities demonstrate that this species inhabits the whole of western (as well as eastern) North America. Specimens from Tamaulipas, Mexico, are in Lieut. Couch's collection; from San Francisco, California, in Lieut. Trowbridge's; from Utah Territory, in Lieut. Beckwith's; and from Milk River, a tributary of the Upper Missouri, in the collection of Dr. George Suckley, attached to the party in charge of the Hon. I. I. Stevens.

5. HIEROFALCO CANDICANS, (Gmelin.)

Falco candicans, Gm. Syst. Nat. i. p. 275, (1788.)
Falco groenlandicus, Daudin, Tr. d'Orn, ii. p. 107, (1800.)
Falco fuscus, Fabricius, Fauna Groenlandica, p. 56, (1780.)?
"Falco arcticus, Holboll." Label on specimens received from Europe.

Adult. ♂ White, under parts with a few longitudinal narrow stripes of brown. Upper parts white, head and neck behind with longitudinal narrow stripes of brown. Plumage of the back, wing coverts and shorter quills with *irregular confluent transverse bands, and large subterminal hastate or bluntly sagittate spots of ashy brown.* Primary quills white with their tips brownish black, and with irregular and imperfect transverse bars of black, confluent on the shafts of the feathers. Tail white, with transverse bars of brownish black in some of the outer feathers, only observable on their outer webs.

Dimensions.—Total length (of skin,) about 24 inches, wing 16, tail 10 inches.

Young. Entire upper plumage with the brown predominating, and of a lighter shade than in the adult, and tinged with ashy; every feather edged with white, and more or less barred and spotted with white, and pale reddish. The brown color showing a tendency to form the bands and sagittate spots of the adult. Under parts white, tinged with ashy, with longitudinal stripes of brown, widest on the abdomen. Quills ashy brown, with transverse bands of white tinged with pale fulvous, tail ashy brown, palest on the middle feathers, every feather edged externally with white, and with imperfect transverse bands (or pairs of large spots,) of white.

This fine species is nearly related to that next described, but can be distinguished by the different style of the brown marking of the upper parts. In the present bird, the large subterminal sagittate or hastate spots are especially characteristic, and this character prevails also in the young bird.

The nomenclature of this and the succeeding species is difficult to determine on account of their similarity.

6. HIEROFALCO ISLANDICUS, (Gmelin.)

Falco islandicus, Gm. Syst. Nat. i. p. 275, (1788.)
Falco islandus, Fabricius Faun. Groenl., p. 58, (1780)?

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*In Lieut. Couch's collection there are specimens of the following species from Mexico.

1. Hypotriorchis columbarius, (Linn.) from the State of Tamaulipas.

2. Hypotriorchis rufigularis, (Daudin.) from the State of New Leon. This species has not yet been detected within the limits of the United States; but as the State of New Leon is only separated from Texas by the Rio Grande, it will very probably be found in the State last mentioned.

Adult ♂. White, beneath with a few narrow longitudinal lines of dark brown, most observable on the sides and flanks. Upper parts white, on the head and neck behind with narrow longitudinal lines and stripes of dark brown. Plumage of the back, upper wing coverts, and tertiaries white, *with regular transverse bands of brown, becoming somewhat crescent shaped on the scapulars and rump*, and slightly acuminate on the shafts of the feathers. Primaries white, brownish-black at their ends, and with imperfect, confluent, transverse bands of brown. Tail white, with about twelve transverse bands of brown.

Young. Entire upper plumage brown, with transverse bands of dull white, generally interrupted and imperfect in the middle of the feather. Under parts dull white, with numerous circular and irregular-shaped spots of dark brown, largest on the sides, and disposed to form transverse bands on the tibiæ and flanks. Quills dark brown, with transverse bands of white tinged with fulvous on their inner webs; tail dark brown with transverse bands of ashy white.

Dimensions.—Total length (of skin) about 24 inches, wing 16½, tail 10 inches.

Specimens in the collection from Greenland are strictly identical with others in the collection of the Academy which were presented by our distinguished members, Messrs. Thomas B., and Edward Wilson, and carefully ascertained to be undoubted Iceland specimens by the latter gentleman.

In the present species the entire upper parts are transversely and nearly regularly barred with brown, and the under parts less spotted than in the preceding. The young bird also presents the same character on the upper parts in some degree, while the under parts are spotted and transversely striped only, and not with the numerous longitudinal stripes of the young of the preceding.

These two birds appear to be different species so far as I can judge from the specimens before me, and are so regarded by nearly all modern authors. They are, however, nearly related, and I am not without a suspicion of their identity.

7. Astur atricapillus, (Wilson).

A specimen in Dr. Suckley's collection from the Columbia river, in Oregon. This is the only western specimen that has ever come under my notice.

8. Accipiter Cooperii, (Bonaparte).

Specimens from near San Francisco, California, in Lieut. Trowbridge's collection, and from Yakima river, Washington Territory, in that made by Dr. Cooper.

9. Accipiter mexicanus, Swainson.

Excellent specimens of adults and young from New Mexico are in the collection of T. C. Henry, M.D., U. S. Army.

10. Accipiter fuscus, (Gmelin).

From Shoalwater Bay, Washington Territory, in Dr. Cooper's collection; and from near San Francisco, California, in a Collection made by Mr. R. D. Cutts.

11. Buteo borealis, (Gmelin).

In the comparison of numerous specimens of adults and young from various localities in Western North America, with others obtained in the vicinity of Philadelphia, I have failed to detect any differences not consistent with specific identity. There is in some specimens a greater extent of the brown color on the breast, and a deeper shade of rufous on the abdomen and tibiæ, than is usual in eastern specimens, but I have found no character in the western bird that I have not seen at some time in the other. In my Synopsis I have erroneously regarded this bird as *Buteo Swainsonii*, which I have reason to suppose, as will appear in my notice of that species in the present paper, has also been done by other writers.

12. Buteo Bairdii, Hoy, Proc. Acad., Philada., vi. p. 452.

The only specimen yet obtained in Western America is in the collection made by Mr. Kreutzfeldt, who was attached to the party in charge of Lieut. E. G. Beckwith, U. S. Army. It is very similar to the specimen regarded as the more adult of the two described as above cited, but has the brown spots on the under parts larger, and the tibiæ transversely barred with dark brown, and tinged

with rufous. It is labelled as having been obtained on the Rio Grande, in the territory of Utah.

13. BUTEO SWAINSONII, Bonaparte.

In the collection made by Mr. Kreutzfeldt, of Lieut. Beckwith's party, there are three specimens undoubtedly of this species, and the first that I have ever seen.

This species is a typical *Buteo*, and though I cannot regard it as identical with the European *Buteo vulgaris*, it is more nearly related to it than is any other American species with which I am acquainted. Like that species, too, it presents a marked variation in the colors of different specimens, the present three being all unlike each other in a considerable degree. One specimen is almost exactly of the form, dimensions and colors as originally described and figured by Mr. Swainson, in Fauna Boreali Americana, Birds p. 47, pl. 27, and stated by him to have been made (both description and figure) from a male bird. On the specimen described by Mr. Swainson, as a female, (in the work just mentioned, p. 49,) I shall venture some observations below.

The first and apparently most mature specimen is as follows:

Bill wide at base, compressed towards the tip, edge of the upper mandible lobed, cere large. Wing long, third quill longest, tail moderate, rather wide, truncate, tarsus feathered in front for nearly half its length, naked behind, bare portion presenting in front about twelve transverse scales, toes rather short, claws strong. Entire upper parts dark brown, nearly black in the middle of many feathers, and paler on their edges. Quills brownish black, with wide, transverse bands of cinereous on their inner webs, becoming paler and nearly pure white towards their bases. Tail brown, tinged with ashy, and having transverse bands of a darker shade of brown, the subterminal of which is widest, tip edged with white. Throat white, with longitudinal lines of dark brown, *neck before and breast ashy brown*, some of the feathers edged with reddish. Other under parts white, nearly pure on the under tail coverts, and strongly tinged, and with transverse, irregular bars of rufous on the tibiæ, abdomen with numerous irregular and imperfect narrow transverse bars of brown tinged with reddish. Under wing coverts white, with a few spots and transverse stripes of brown. Bill dark slate color, tarsi and toes yellow.

Dimensions.—Total length (of skin,) 21½ inches, wing 16, tail 8½, tarsus 2½ inches.

The second specimen has the upper parts as just described, but darker. Throat white, faintly tinged with yellowish, (without stripes of brown,) *breast dark brown, (nearly black)*, and the other under parts pale rufous, darker on the tibiæ, and with transverse stripes of brown on all the under parts less numerous than on the abdomen of the preceding specimen, and more irregular. Total length (of skin) 20½ inches, wing 15½, tail 8½.

The third specimen has the upper parts about the same shade of brown as the first described above, but with the tail darker, and the transverse bands more indistinct. Throat white, with a few longitudinal lines of black, *neck before and breast light rufous*, some of the feathers ashy brown in the middle, other under parts white nearly pure and unspotted on the lower part of the abdomen and on the under tail coverts, tinged with very pale reddish on the tibiæ, upper portion of abdomen and flanks nearly pure white with a few spots and transverse bars of fulvous and dark brown. Total length (of skin) 20 inches, wing 15½, tail 8 inches.

In all these specimens the color of the neck before and of the breast, may be said to form a wide uninterrupted transverse belt or band, and is a very conspicuous and apparently constant character. The sexes of these specimens are not stated in the labels attached to them.

The tail in the specimens above varies merely in shade of the same brown color. In the first and apparently the most mature specimen, it is strongly tinged with cinereous. There is no tendency to become red in the tail of either specimen.

Although I have no doubt whatever that this is the species indicated by the description of Mr. Swainson as above cited, my opinion is that it is the male bird only to which this conclusion applies.

The female described by Mr. Swainson does not appear to me to be of the same species, but apparently is that of the *Buteo borealis*, in plumage not mature. A careful examination of the descriptions of the male and female here alluded to, which are given by Mr. Swainson with his usual great accuracy, will show some material points of difference. Of the male it is stated that "the *third* quill feather is the longest, the *fourth* is nearly a quarter of an inch, and the *second* an inch and a quarter shorter." Of the female "the *third* and *fourth* quill feathers are of equal length." Of the male "cere and legs yellowish,"—of the female "the cere and legs have a bluish livid color." The last character may, however, only indicate a young bird, and that the specimen was a young bird, is further rendered probable by the statement that "the feathers are more downy" than those of the male. The total length of the male is given as 22 inches, that of the female 26 inches. All the measurements of the female as given, and the description, apply to the immature *Buteo borealis*, especially to western specimens.

The bird figured by Mr. Audubon as *Falco buteo* (B. of Am. pl. 372) is the young bird of *Buteo borealis* and not the present species. European naturalists generally have regarded this bird as either identical with that species, or as nearly related to it, both of which conclusions are erroneous.

14. Buteo calurus, nobis.

Form.—Similar in general form to *Buteo augur, tachardus* and *vulgaris*. Bill strong, edges of the upper mandible with distinct rounded lobes, wings long, fifth quills slightly longest, tail moderate (or rather short). Tarsi feathered in front for nearly half their length, naked behind, naked portion in front presenting about ten transverse scales, claws large, strong, fully curved.

Dimensions.—(Of skin) sex unknown. Total length about 21 inches, wing 16½, tail 9 inches.

Colors.—Tail bright rufous above, white at the base, every feather having about eight irregular and imperfect transverse narrow bands and one wide subterminal band of brownish black, beneath silky reddish white. Entire plumage of the head, neck and body above and below dark brown, nearly black on the back and abdomen and palest on the breast. Plumage of the upper parts with partially concealed transverse bands of white, and of the under parts with circular spots and transverse bands of the same (also partially concealed). Quills dark brown, with a large portion of their inner webs white, banded and mottled with pale ashy brown. Tibial feathers and under tail coverts transversely barred with dark brown and pale rufous.

Hab.—New Mexico, discovered by T. Charlton Henry, M. D,, United States Army. This new and very remarkable bird presents a combination of characters quite unusual in an American species, and it bears a greater resemblance to a Northern African species, *Buteo augur*, Rüppell, than to any other with which I am acquainted. In some degree it also resembles my *Buteo insignatus* (B. of Cal. and Texas i. p. 102, pl. 31), but is much larger, and presents various other strong points of difference. The present bird would present to a casual observer the appearance of the Black Hawk (*Archibuteo sancti-johannis*) with the tail attached of the common red-tailed Buzzard (*Buteo borealis*), a combination hitherto unknown amongst American Falconidæ, but which exists in the African *Buteo augur*.

The bird now described is in an extensive collection containing many interesting and little known species, made by Dr. T. C. Henry of the United States Army, whose exertions have continued unremitted for several years. It was obtained in the vicinity of Fort Webster, New Mexico.

15. Buteo elegans, nobis.

Form.—Generally similar to *Buteo lineatus*. Bill rather slender, edges of

the upper mandible with a rounded not well defined lobe, wing moderate, fourth quill longest, first quill short, tail moderate, wide, rounded. Tarsus feathered in front slightly below the joint with the tibia, naked behind, naked portion in front presenting about twelve transverse scales.

Dimensions.—Total length, adult male ? (of skin) about 19 inches, wing 13, tail 8 inches.

Colors.—Adult, generally resembling those of *Buteo lineatus*. Throat dark brown with white longitudinal lines. Entire under parts bright rufous, darker and unspotted on the breast, lighter on the abdomen, tibiæ and under tail coverts and with transverse bands of pale reddish white; the latter (white) purer at the bases of the feathers. Abdomen, tibiæ and under tail coverts uniformly colored.

Entire upper parts dark brown, feathers of the head and back edged with dark rufous, upper coverts of the tail narrowly tipped with white. Shoulders dark rufous, every feather with a narrow central stripe of dark brown, superior coverts of the wings dark brown, edged on their inner webs with rufous and with transverse stripes partially concealed, and circular spots of white, and tipped with the same. Quills brownish black, primaries and secondaries with numerous irregular transverse bands of white, running obliquely on their inner webs, all the quills widely tipped with white. Tail brownish black, white at base, and having four transverse bands of white and tipped with the same. Under wing coverts rufous, barred with reddish white, uniform with the abdomen and under tail coverts.

Dimensions.—Total length (of skin) male ? 19 inches, wing 13, tail 8½ inches.

Young. Upper parts brown, plumage of the head edged with reddish white and on the back with rufous, quills with their inner webs barred with white and dark brown, the bands of the former (white) much the widest and narrowly edged with rufous, all the quills narrowly tipped with white. Tail dark brown, with four transverse bands of ashy white, purer on the inner webs and narrowly tipped with white. Throat dark brown, with longitudinal narrow stripes of white, other under parts dull yellowish white, every feather with wide transverse and confluent bands of dark brown, and at its end a large arrow head of the same color. These bands and sagittate spots giving the predominating color (brown) to the breast and sides, but less numerous on the abdomen and under tail coverts. Tibial feathers, inferior coverts of the wing and some feathers of the shoulders pale rufous. Total length (of skin) 18 inches, wing 12½, tail 8½ inches.

Hab.—California, (Dr. Heermann;) New Mexico, (Dr. Kennerly.)

This bird, the adult and young of which are in a collection made by Dr. Heermann, in California, and another young specimen in Lieut. Whipple's collection, bears a considerable resemblance to *Buteo lineatus*. The entire under parts are, however, of a different red color, and continued to the abdomen and under tail coverts. In the present species, this color is nearly a clear brick red; while in *B. lineatus*, it is more of an orange color, and in the latter, the lower part of the abdomen, and under coverts are nearly pure white in adult specimens. The under parts in the young birds of the present species are entirely and strikingly different from those of its relative mentioned.

16. BUTEO OXYPTERUS, nobis.

Form.—About the size of *Buteo pennsylvanicus*, (Wilson). Bill rather long and compressed, edge of the upper mandible slightly waved in its outline, but scarcely lobed; wing long, third quill distinctly longest, tail rather short, legs rather long, tarsus feathered in front for about one third of its length, naked behind, and with its naked portion in front, presenting about fourteen narrow transverse scales, claws large, strong, fully curved.

Dimensions.—Total length (of skin,) sex unknown, about 16 inches, wing 13½, tail 7 inches.

Colors.—(Young bird, sex unknown.) Entire plumage above dark brown, nearly black on the back. Feathers of the head white at base and edged laterally with the same; many feathers of the upper parts of the body also white at

their bases, and with partially concealed transverse bands of white, quills very dark brown (nearly black,) with the inner webs dark cinereous barred with brown, tail above ashy brown, all the feathers white at base, and having about ten transverse bands of dark brown, outer feathers (of the tail) ashy white on their inner webs, tail beneath silky ashy white, with a bronzed yellowish olive lustre.

Behind and under the eye a stripe of rufous brown. Under parts pale yellowish white, throat with lines and narrow stripes of brownish black, and on other under parts every feather with a large lanceolate, circular or cordate spot of dark brown, some feathers on the flanks and sides having also some irregular transverse bands of the same color. Nearly all the feathers on the under parts with lines of dark brown on their shafts.

Quills with their inner webs on the under surface of the wing grayish or dark ashy, and near the shafts with a bronzed olive lustre; shafts white (on the under surface.) Inferior wing coverts white with arrow heads of dark brown. Tibial feathers yellowish white, tinged with rufous, and having irregular transverse bars of dark brown.

Adult, black?

Hab.—New Mexico. Discovered by T. Charlton Henry, M.D., U. S. Army.

The specimen now described is the young of a species the adult of which is as yet unknown. It is about the size of *B. pennsylvanicus*, with the wings and legs much longer and the bill also somewhat longer. The colors, too, are different, and in the present bird the dark cinereous of the inner webs of the quills and the bronzed or silky olive lustre on their inferior surfaces are especially remarkable. The exposed edges and ends of some of the secondaries in the present specimen have a distinct purple lustre. I suspect that the adult of this bird is black.

This bird is in the valuable collection made by T. C. Henry, M.D., U. S. Army, and is from the vicinity of Fort Webster, New Mexico.

17. Archibuteo lagopus, (Gmelin.)

A specimen is in Dr. Cooper's collection from Shoalwater Bay, Washington Territory, and another is in Dr. Kennerly's collection from the River Zuni in New Mexico.

18. Archibuteo ferrugineus, (Licht.)

Specimens of adults and young birds in Dr. Heermann's collection.*

19. Elanus leucurus, (Vieill.)

Specimens from near San Francisco, California, in a collection made by Mr. R. D. Cutts.

20. Circus hudsonius, (Linn.)

Specimens from Minnesota Territory are in Dr. Suckley's collection, from Utah Territory in Mr. Kreutzfeldt's, from New Mexico, in Capt. Pope's, Lieut. Whipple's and Dr. Henry's, and from Tamaulipas, Mexico, in Lieut. Couch's collection.

21. Aquila chrysaetos, (Linn.)

In Dr. Henry's collection from New Mexico.

22. Haliaetus albicilla, (Linn.)

In the collection from Greenland there is a fine specimen of this bird. We notice no material difference between it and others from various European localities.

23. Haliaetus leucocephalus, (Linn.)

Dr. Cooper's collection contains a specimen in immature plumage, which was obtained at Shoalwater Bay, Washington Territory.

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* As probably belonging to the *Buteonidæ*, we may mention here that the following species is in Lieut. Couch's collection, and having been obtained by him in the northern part of the State of New Leon, Mexico, may be expected to occur in Texas:

1. Asturina cinerea, Vieill. Gal. des Ois. i. pl. 20.

24. POLYBORUS THARUS, (Molina.)
Specimens are in a collection made by Mr. Arthur Schott, while attached to the Mexican Boundary Commission in charge of Major W. H. Emory, U. S. Army. They were obtained in Texas.

25. MORPHNUS UNICINCTUS, (Temm.)
Specimens are in the collections made in Texas by Mr. Schott, Dr. Kennerly and Lieut. Couch.

The Committee to which was referred a paper by Messrs. J. G. Norwood and Henry Pratten, containing notices of Fossils from the Carboniferous series of the Western States, reported in favor of its publication in the Journal.

The Committee to which was referred a communication entitled "Remarks on the Cryptogamic Flora of the State of Georgia, by Prof. Julien Deby," reported in favor of publication in the Journal.

Dr. Leidy offered the following Preamble and Resolutions, which were unanimously adopted.

Whereas, Information has been received by this Academy, that a proposal has been made to the Board of Regents of the Smithsonian Institution to change, in several fundamental particulars, the system of administration adopted by said Board;

And whereas, The relationships of this Academy to the cultivation of the natural sciences in the United States and elsewhere, give to it a peculiar interest in the employment of the means best suited to the most liberal promotion of those sciences;

And whereas, It is the opinion of this Academy that, in view of the multiplied means which the zeal, enterprise and skill of the present age have furnished and will continue to furnish, for the "increase and diffusion of knowledge among men," it is eminently desirable that the special opportunities and aids rendered practicable by the bequest of Mr. Smithson, shall be discreetly applied to such important objects as are not likely to receive assistance from ordinary sources;

And whereas, Such application is to be guided rather by the relations which the objects selected hold with important scientific generalizations, and with the largest increments of scientific knowledge, than by considerations of minute or ephemeral utility;

And whereas, The plan of operations adopted by the Board of Regents is believed by this Academy to be well adapted to promoting, in the largest as well as the most practical sense, "the increase and diffusion of knowledge among men;" and that it possesses the advantage of supplying, according to a comprehensive and philosophic anticipation, the wants of the age, without superfluous intervention in cases in which other agencies will surely produce the desired results without such intervention;

And whereas, The number, variety, and extent of the departments of knowledge, render it essential to the greatest usefulness of any plan of administration of the Smithsonian fund, that it shall have the confidence of the persons upon whose contributions its resources for good shall be mainly dependant; and also that it shall be maintained in operation consistently and without frequent change;

Therefore, *Resolved*, That this Academy, as at present advised, would deeply regret any material alteration of the plan adopted by the Board of Regents;

Resolved, That, as an expression of the reasonable solicitude of this Academy, and of the desire which its experience has occasioned for the continuance of said plan, the President is hereby requested to forward a copy of the foregoing preamble and resolutions to the Secretary of said Board.

ELECTION.

Rev. Dr. J. C. Adamson, late of Cape Town, Cape of Good Hope, and Capt Geo. B. McClellan, U. S. A., were elected *Correspondents* of the Academy.

Para, or Scenes and Adventures on the banks of the Amazon. By John E. Warren. 8vo.

Chapters on Fossil Botany. By S. R. Pattison. 12mo.

The Conchologist's First Book. By Edgar A Poe. Second edition. 12mo.

The Geology of Scotland and its Islands. By Wm. Rhind. 12mo.

Specchio delle Scienze o Giornale Enciclopedico di Sicilia. Dal Sig. C. S. Rafinesque. Tome 1, No. 2, 3; tome 2, No. 7, 11.

Sylva Telluriana. Mantissa Synoptica. By C. S. Rafinesque. 8vo.

Alsographia Americana, or an American Grove of Trees and Shrubs. By C. S. Rafinesque.

Autikon Botanikon. Second part. By C. S. Rafinesque.

Amenities of Nature, or Annals of Historical and Natural Sciences. By C. S. Rafinesque.

New Flora of North America. By Prof. Rafinesque. Parts 1—4.

American Manual of the Mulberry Trees. By Prof. C. S. Rafinesque.

December 12th.

The following were presented by Dr. Wilson, on the usual condition:—

The Mammals of Australia. By John Gould. Part 6. Folio.

The Birds of Asia. By John Gould. Part 6. Folio.

Monograph of the Rhamphastidæ. By John Gould. Part 4. Folio.

Monograph of the Trochilidæ. By John Gould. Parts 7 and 8. Folio.

Annals and Magazine of Natural History for October and November, 1854.

London, Edinburgh and Dublin Philosophical Magazine for October and November, 1854.

The Micrographic Dictionary. By J. W. Griffith and A. Henfrey. Parts 1, 2, 3.

Quarterly Journal of Microscopical Science. No. 9. 8vo.

Cyclopædia of Anatomy and Physiology. Edited by Robert B. Todd, M.D. Part 44.

Conchologia Iconica. By Lovell Reeve. Parts 133, 134, 135.

Synopsis Plantarum Glumaceærum. Autore E. G. Steudel. Fascic. 1.

Naumannia. Archiv für die Ornithologie vorzugsweise Europa's. Herausg. von E. Baldanus. 1854. 2s Quartal.

Beiträge zur Ornithologie Afrika's, von Baron J. W. von Muller. Lief. 1, 2. Folio.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Von W. Dunker und H. von Meyer. Vol. 4, No. 2.

Beiträge zur Kenntniss der Haare des Menschen und der Säugethiere. Von F. Reissner.

Untersuchungen über die erste Entwickelung verschiedener Gewebe des menschlichen Körpers. Von Dr. F. Günsburg.

Die Verjüngung im Thierreich als Schöpfungsplan der Thierformen, &c. Von Dr. C. H. Schultz-Schultzenstein.

Zur Lehre vom Generationswechsel und der Fortpflanzung bei Medusen und Polypen. Von Dr. Carl Gegenbauer.

Beiträge zur Anatomie und Physiologie der Gewächse von Dr. H. Schacht. 8vo.

Botanische Untersuchungen. Von Dr. Albert Wigand.

Der Baum. Betrachtungen über Gestalt und Lebensgeschichte der Holzgewächse. Von A. Wigand. 8vo.

Die Fische des Neckars, von Dr. A. Günther.

Untersuchungen über die Entwickelung und den Bau der Gliederthiere. Von Dr. Gustav Zaddach. Heft 1. 4to.

Die Infusionsthiere auf ihre Entwickelungsgeschichte untersucht von Dr. F. Stein. 4to.

Ueber den Organismus der Polythalamien (Foramineren) nebst Bemerkungen über die Rhizopoden im Allgemeinen von Max Sigmund Schultze. Folio.

Beiträge zur Naturgeschichte des Seriema von Prof. Dr. H. Burmeister.

Widerlegung des von Dr. Keber bei den Najaden und Dr. Nelson bei den Ascariden behaupteten Eindringens der Spermatozoiden in das Ei. Von Dr. T. L. W. Bischoff.

Bericht über eine im Jahre 1851 unternomme Geognostische Reise durch die südlichsten Punkte des Banats der Banater Militairgrenze und Siebenbürgen von Dr. Andræ.

Beiträge zur Vergleichenden Morphologie der Pflanzen. Von Thilo Irmisch.

Beiträg zur Naturgeschichte der einheimischen Valeriana-Arten insbesondere der Valeriana officinalis und dioica von Thilo Irmisch.

Bemerkungen über die Gattung Hemerocallis und deren Arten von Prof. Dr. v. Schlechtendal.

Ueber den Bau der Echinodermen. Von J. Müller.

Beschreibung der Eingeweidewürmer des Dicholophus cristatus von Dr. Creplin.

Entwickelungsgeschichte des Rehes. Von Th. L. W. Bischoff.

Uebersicht der brasilianischen Mutillen von Prof. Dr. H. Burmeister.

Xenia Orchidacea. Beiträge zur kenntniss der Orchideen von H. G. Reichenbach fil. 1es heft. 4to.

Ueber Arten der Gattung Cebus. Von Prof. Dr. H. Burmeister.

Betrachtungen über die Zwergmandeln und die Gattung Amygdalus überhaupt. Von Prof. Dr. von Schlechtendal.

Bemerkungen über den Allgemeinen Bau und die Geschlechtsunterscheide bei den Arten der Gattung Scolia von Prof. Dr. H. Burmeister.

Ueber den allgemeinen Plan in der Entwickelung der Echinodermen. Von Joh. Müller.

December 19th.

Journal of the Society of Arts, (London.) Nos. 69—84. 8vo. From the Society.

Journal of the Indian Archipelago and Eastern Asia. Vol. 8, Nos. 1—4. From the Editor.

On the Mammoth, or fossil Elephant found in the ice, at the mouth of the River Lena, in Siberia. From Mr. H. C. Hanson.

Catalogue of my English Library, collected and described by Henry Stevens. 12mo. From the Author.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 17—81. From the Society.

Report of the Astronomer Royal to the Board of Visitors, June 3, 1854.

Regulations of the Royal Observatory, Greenwich.

Gelehrte Anzeigen. Herausg. von Mitgl. der k. bayer. Akad. der Wissen. 38 Band. 4to. From the Academy.

Jahrbuch der k. k. Geologischen Reichsanstalt. 4, 1853, nr. 4; 5, 1854, nr. 1. From the Institute.

Denkschriften der k. Akad. der Wissen. Mathemat-naturwissen. Classe. 4 band, 1 lief 1852; 5 band, 2 lief 1853; 7 band, 1854. From the Academy.

Archiv für Naturgeschichte. Herausg. von Dr. F. H. Troschel. 1852, No. 6; 1853, Nos. 3, 4, 5; 1854, Nos. 1, 2. From the Editor.

Archives de Physiologie, de Therapeutique et d'Hygiene sous la direction de M. Bouchardat. No. 1, Jan., 1854. 8vo. From the Editor.

Verhandlungen des Vereins zur Beförderung des Gartenbaues in den Kœnig. Preussischen Staaten. Vol. 1, in 3 parts. 8vo. From the Association.

Verhandlungen des Naturhistorichen Vereines der Preussischen Rheinlande und Westphalens. Herausg. von Prof. Budge. 1852, 1853, 1854, Nos. 1, 2, 3. From the Association.

Sitzungsberichte der k. Akad. der Wissen. Mathemat.-naturwissen. classe. Vol. 11, No. 1; Vol. 12, Nos. 1, 2, 3, 4. From the Academy.

Entomologische Zeitung. Herausg. von dem entomologischen Vereine zu Stettin. 1853, No. 1. From the Association.

Prodromus Floræ Bryologicæ Surinamensis. Auctoribus F. Dozy et J. H. Molkenboer. From the Author.

March 13*th*, 1855.

Vice President BRIDGES in the Chair.

Letters were read—

From Henry Piddington, Esq., dated Calcutta, 5th Dec. 1854, transmitting certain publications, intended for the Academy.

From the New York Lyceum of Natural History, dated 20th Feb. 1855, acknowledging the receipt of the Proceedings, Vol. 7, No. 6.

From the Trustees of the New York State Library, dated Albany, 5th Feb. 1855, also acknowledging the receipt of the Proceedings.

From the Secretary of the Smithsonian Institute, Washington, dated 8th March, 1855, acknowledging the receipt of a copy of the Preamble and Resolutions adopted by the Academy 27th Feb. last.

March 20*th*.

The President, Mr. ORD, in the Chair.

Letters were read—

From Dr. Hiram D. Prout, of St. Louis, dated March 9th, 1855, and from Professor Ernest Brücke, dated Vienna, 24th Dec. 1854, severally acknowledging the receipt of their notices of election as Correspondents.

March 27*th*.

Vice President BRIDGES in the Chair.

ELECTION.

Mr. Wm. Cadwalader, Mr. W. Frederick Rogers, and Mr. Isaac Barton of Philadelphia, were elected *Members*, and

Senor F. A. Sauvalle, of Havana, was elected a *Correspondent*.

April 3*d*.

Mr. LEA, Vice President, in the Chair.

Letters were read—

From the Imperial Society of Sciences, &c., of Lisle, transmitting Vol. 1 of their Memoirs, and acknowledging the receipt of Nos. of the Journal and Proceedings.

From the Trustees of the New York State Library, dated Albany, 23d March, 1855, acknowledging the receipt of the Proceedings, Vol. 7, No. 7.

Dr. LeConte presented for publication in the Proceedings, the following papers, viz:

"Synopsis of the Lathridiides of the United States, and contiguous Territories," and "Analytical table of the species of Hydroporus, found

in the United States, with descriptions of new species;" both of which were referred to Mr. Haldeman, Dr. Leidy, and Mr. Guex.

Mr. Durand presented for publication in the Journal, a paper entitled "Plantæ Prattenianiæ Californicæ, an enumeration of a collection of California plants, made in the city of Nevada by Henry Pratten, of New Harmony, Indiana, with critical notices and descriptions of such of them as are new or yet unpublished in America." Referred to Dr. Bridges, Dr. Zantzinger, and Mr. Kilvington.

Mr. Cassin presented a paper for publication in the Proceedings, from Dr. T. Charlton Henry, U. S. A., entitled "Notes derived from observations made on the Birds of New Mexico, during the years 1853 and 1854," which was referred to Mr. Cassin, Col. McCall and Dr. Wilson.

Dr. Leidy read letters from Dr. Ruschenberger, dated Rio Janeiro, ——— and Valparaiso ———, transmitting donations of objects of Natural History for the Museum, and giving some interesting information relative to the state of Natural Science in Brazil.

Dr. Le Conte mentioned that a female cat in his possession having been impregnated by a male of the tailless variety of cat, found in the Isle of Man, had produced in her first litter two kittens, one of which had a tail of half the usual length, while the other was entirely destitute of all caudal appendage; by a subsequent impregnation the same female brought forth three kittens, two of which were similar in form to the mother, while the third resembled the father in the absence of a tail. Another young female, impregnated by the same male, brought forth in her first litter four kittens, in all of which the tail was completely absent. Dr. Le Conte proposed from time to time to furnish the Academy with the history of the increase of this interesting family, as it furnished a very convenient method of determining whether the physical characters of the male or female are most frequently transmitted to the offspring. Dr. Le Conte mentioned also that the existence of this curious ecaudate variety of the domestic cat had not been sufficiently noticed by naturalists; and that even its existence was alluded to in very few of the works thus far published. A corresponding, or very nearly similar variety was known in Japan, and, as already mentioned in the letters from Dr. Ruschenberger read this evening, had been brought thence by the Japan Expedition under Com. Perry, which had recently returned.

Mr. Rand remarked relative to the specimen of Uranite, presented this evening, that although not remarkable as a specimen of this rare mineral, it was interesting as being from a new locality which is now thought to be exhausted. He believed that there are but three other localities of this mineral known in the United States. The specimen is from the western side of the Schuylkill near the Fairmount dam; this locality was discovered some two years ago by his brother Theodore D. H. Rand, who procured quite a quantity of the mineral before the locality was exhausted. After analysis, he sent a description of the locality to the American Journal of Science and Arts. It was not noticed in that

Journal, but in the last edition of Dana's Mineralogy the locality was given, but without credit.

April 10th.

Vice President BRIDGES in the Chair.

Letters were read—

From Capt. Geo. B. McClellan U. S. A., dated April 6th, 1855, acknowledging the receipt of his notice of election as a Correspondent.

From the Geological Society of London, dated Nov. 16th, 1854, acknowledging the receipt of Nos. of the Proceedings and Journal.

From Ed. de Vernueil, dated Paris, March 20, 1855, acknowledging the receipt of his notice of election as a Correspondent, and making inquiry relative to the publications of the Academy.

Mr. Isaac Lea read a letter from Dr. Deane, of Greenfield, Massachusetts, accompanying a photographic impression of some footprints in sandstone, specimens of which he desires to dispose of.

Mr. Cassin read a letter from Capt. F. Bernsée, of the Ship Courier, wrecked on the S. W. point of East Falkland Island, in April, 1854, of which the following is an extract.

"The next morning when we found ourselves homeless and houseless, as well as reduced to poverty, we commenced looking round for something to eat. In this we had no trouble, for game and birds (of the kind I send you) were more abundant than I had ever seen them before; and as few human beings had ever trod that part of the Island, they were fearless and would come up to look at us; and we could get any quantity by knocking them down with sticks and stones. The wolves, of which there were but few, would also come to look at us; and would take a duck from one of our hands, while with the other we would knock them on the head with a stick. I seldom saw more than one of them at a time. Some wolves were caught alive by swinging a small line with a stone tied to the end of it round and round the head with force, and when the wolf would come for a duck or a goose which another man would shake at him, we would let the stone with the line swing round his legs, and tangle him up so that we could secure him. At one time we had six, all caught in that manner, and tied in different places around our tent, which we had fixed as a shelter from wind, snow and rain, for winter was coming on. During the time we had these wolves prisoners, some fifteen or twenty would visit them at night, and make a strange noise that would sometimes sound like the bark of a dog, and then change to a snarl and a howl. They would get quite tame in two or three days, but not sufficiently so to let them go loose; they, however, would not bite when we put our fingers in their mouths, or threw them across our shoulders and carried them like a dog. They appeared to be very playful, as those that were not caught would come up in the daytime and have great times with our dog; but his courage generally failed him and he would run off and come up to the men. They burrow in the sand hills: and I often found two or three openings, which led through long channels underground to their kennel. They feed chiefly on the large-sized geese sent you, as I have reason to believe from the great number of wings, feet, and feathers I found. These wolves I found to be very short-winded. They do not run even short distances with great speed; and my sailors would often outrun them, when they would all at once turn short round, and give up, blowing heavily with the tongue hanging far out of the mouth, and then make the same noise as above stated. But they would never make at us or show fight, but stand still and show their teeth.

"The large sized goose is called by the inhabitants of the Island whom we found six weeks afterwards, the *upland goose*; the white one is the male; these birds are there in great numbers, but are seldom seen in large flocks; I never saw more than from twelve to twenty, but even in these flocks they will pair off and go two by two at short distances from each other. They are oftener found in pairs entirely separated from other geese. I found them away from salt water, and near fresh water ponds. They live principally on a moss that grows there. In summer they lose all their feathers, and then as a matter of course cannot fly; they therefore keep constantly afloat in these ponds until their feathers grow out; I watched these birds very closely during my stay. I found their habits very much like other tame geese. Their meat is excellent eating, and not so dark as our wild goose. In Patagonia and along the S. E. coast of South America, they are also found; but there they are shy, and difficult to approach within gunshot. Strange to say I have never met them on the west coast of South America in the same latitude.

"The next goose in size is the *Kelp goose*. The black breasted one is the female; the pure white, the male. These birds I never saw but in pairs, and never away from the salt water. Their meat is hardly eatable. They are very tame, and live principally among rocks and kelp. The young all look like the female, but the young males afterwards change their feathers and become white.

"Of the *small-sized goose*, or the third kind, I shall make but few remarks, as their habits are precisely like those of the upland goose. The inhabitants call them the *Poran goose*. The male and female are alike. They are not near so plenty as the upland goose. They, as well as the kelp goose, are found around Cape Horn, and on the Island of Terra del Fuego.

"Another bird sent you, of a white color, is, both while flying and walking on the rocks, so like the common domestic pigeon, that it is difficult to tell them apart. Although not web-footed, they fly at times great distances from the shore; I never saw more than six or eight together, and generally single. They feed on worms and insects which they pick from the cracks in the rocks, after the tide has fallen. They are called *Rock pigeons*.

"Another bird, of which I saw plenty, a kind of *Oyster-catcher*, is black, with a white breast, a long compressed bill, and long red legs. These birds generally go along the beach in pairs; and give warning of danger by a long shrill whistle.

"Another specimen is a bird precisely like the last in habits, but wholly black. I did not find many of them on the Falkland Islands.

"I found a great many rats and mice on these Islands. Whether they are different from our own or not I am unable to say; their general habits are the same. The mice, however, I think are smaller than ours; and the legs of the rats are of a red-flesh color, and almost hairless above the knee joint."

[NOTE.—The wolf, whose habits are well sketched in the above letter, is Canis antarcticus, Shaw; the upland goose, Bernicla antarctica, Mellon; the kelp goose, Bernicla magellanica, Mellon; the small-sized goose, Bernicla inornata, King; rock pigeon, Chionis alba, Forster; the oyster-catcher with white breast, Hæmatopus palliatus, Temm.; the black oyster catcher, Hæmatopus ater, Vieill.]

Dr. Genth presented a paper for publication in the Proceedings, entitled, "Analysis of the Meteoric Iron, from Tucson, Province of Sonora, Mexico." Referred to Dr. Le Conte, Dr. Bridges, and Dr. Wetherill.

Dr. Le Conte desired to call the attention of the members of the Academy to some very grievous misrepresentations contained in the 'Catalogue des Larves des Coléoptères', by MM. Chapuis and Candèze, published in the eighth volume of the Memoirs of the Société Royale des Sciences de Liége. The portion he complained of was the article on the larva of Eurypalpus, (pp. 155–157), which purported to be, and

was in reality, a literal translation of the account printed by him in the work on Lake Superior by Professor Agassiz, with the single exception, that in every place where Dr. Le Conte had taken occasion to mention and criticise the erroneous views of Dr. De Kay regarding this curious larva, the Belgian naturalists had substituted the name of Dr. Harris for that of Dr. De Kay. This error was the more unaccountable, since in Dr. Le Conte's original description, he had mentioned the name of Dr. Harris but once, and then for the purpose of publicly expressing his acknowledgements for some hints kindly given towards the true nature of the larva in question, as well as for other valuable information, which the well known accuracy of observation of Dr. Harris had enabled him to give on various occasions, and which his liberal disposition prompts him always to offer for the use of his scientific colleagues. Dr. Le Conte concluded by expressing ardent wishes that foreign naturalists, who seem but lately to have become familiar with works of science published in America, would do our authors the justice, when they quote, to quote correctly.

Mr. Cassin called attention to the specimens of Canis Antarcticus, and of the several species of Geese and other Birds, from the Falkland Islands, alluded to in the letter of Capt. Bernsée, read this evening.

On leave granted, Dr. Wistar offered a Resolution, which was unanimously adopted, inviting the members of the American Medical Association to visit the Museum of the Academy, during the session of that body in this city, in May next.

April 17th.

Vice President BRIDGES in the Chair.

A letter was read from the American Philosophical Society, dated April 13th, 1855, acknowledging the receipt of the last No. of the Proceedings.

A paper was presented from Mr. Charles Girard, for publication in the Proceedings, entitled, "Observations on the Viviparous Fishes inhabiting the Pacific Coast of North America, with an enumeration of the species observed." Referred to Mr. Cassin, Dr. Drysdale, and Dr. J. A. Meigs.

Mr. Cassin presented a paper for publication in the Proceedings, entitled, "Descriptions of new species of Birds from Western Africa, in the collection of the Academy of Natural Sciences of Philadelphia, with a description of one new species from Zanzibar." Referred to Col. McCall, Dr. Wilson, and Dr. Woodhouse.

April 24th.

Vice President BRIDGES in the Chair.

The Committees to which were referred papers read by Dr. Le Conte April 3d; by Dr. T. C. Henry U. S. A. read same date; by Dr. Genth, read April 10th; by Mr. C. Girard, read April 17th; by Mr. Cassin, read same date; by Mr. Blake, read April 24th; and by Prof. Baird, read same date, reported in favor of publication in the Proceedings.

Analytical table of the species of Hydroporus found in the United States, with descriptions of new species.

By JOHN L. LECONTE, M.D.

[The reference Lec.[1] denotes that the species are described in the Annals of the Lyceum of Natural History of New York, Vol. 5; they are all Californian. Those not so marked were described by me in Agassiz' Lake Superior.]

HYDROPORUS Clairville.

A. Breviter ovati convexi, glabri; thorax haud impressus.

a. ·1, Epistoma rotundatum haud marginatum — 1. farctus.

b. Epistoma rotundatum subtiliter marginatum;

·12, subopacus valde punctatus — 2. hydropicus *Lec.*[1]

·12, nitidus piceus valde punctatus — 3. punctatus *Aubé.*

·11, parcius punctatus, thorace rufo (elytris sæpe maculatis) — 4. cuspidatus *Germ.*

B. Breviter ovati, minus convexi, glabri; thorax linea basali nulla; epistoma rotundatum subtiliter marginatum;

·09, Thorax basi utrinque foveatus; elytra costula laterali brevissima; macula communi alteraque utrinque nigris — 5. latissimus *Lec.*[1]

·08, Thorax basi haud foveatus; elytra costula laterali longiore; macula communi alterisque utrinque tribus nigris — 6. acaroides.

Convexior piceus immaculatus, elytris thoraceque simplicibus;

·07, subtiliter punctatus — 7. convexus *Aubé.*

·05, subtiliter punctulatus — 8. granum.

C. Breviter ovatus minus convexus glaber; thorax plica brevi basali utrinque ornatus, cum elytrorum costa discoidali connexa:

·06, testaceus, elytris fuscis testaceo-nebulosis (mihi ignotus) 8[1]. exiguus *Aubé.*

D. Oblongi; thorax striola utrinque basali; epistoma haud marginatum.

1. Striola in elytris continuata.

* Elongati, glabri.

c. Elytra nebulosa, minus subtiliter punctata;

·065, fuscus testaceo vix nebulosus, sequente paulo angustior — 9. obscurellus *Lec.*[1]

·06, testaceus pectore thoracis medio, elytrorumque lineolis fuscis — 10. affinis *Say.*

·06, testaceus, thoracis medio, elytrorumque lineolis paucis fuscis — 11. macularis *Lec.*[1]

·06, testaceus thorace basi nigro, elytris vittatis — 12. pullus.

d. Elytra nebulosa, subtiliter punctulata;

·055, elytris striola basali longiuscula — 13. lacustris *Say.*

e. Elytra maculis vel fasciis transversis ornata;

·065, minus subtiliter punctatus, (femina opaca) — 14. cinctellus *Lec.*[1]

·05, subtiliter punctatus, stria suturali nulla — 15. amandus *Lec.*[1]

·05, subtiliter punctatus, stria suturali distincta — 16. subtilis *Lec.*[1]

** Elongati, subtiliter pubescentes; elytra nebulosa:

·06, testaceus, elytris postpectoreque fusco-piceis — 17. inconspicuus.

*** Minus elongati, glabri, elytra valde punctulata, nebulosa.
·05, ferrugineus, postpectore, thoracis basi elytrisque piceis 18. granarius *Aubé.*
2. Striola in elytris haud continuata;
·05, flavo-testaceus, pubescens, elytris piceis testaceo fasciatis 19. flavicollis.

E. Oblongi, longiusculi glabri, thorax utrinque striola impressus, et postice transversim subdepressus, cum elytris angulum formans; epistoma haud marginatum.
·17, subtus niger, supra luteus, elytris lineis utrinque 6 guttisque duabus externis nigris ornata 20. duodecimlineatus *Lec.*
·13, parce punctatus, thorace elytrisque variegatis, his fortius biseriatim punctatis 21. scitulus.

F. Ovales minus convexi dense punctulati pubescentes; thorax elytris angustior, angulis posticis obtusis; epistoma rotundatum haud marginatum.
·17, elytris striis nonnullis insculptis fasciisque variegatis 22. striatellus *Lec.*

G. Oblongo-ovati, modice convexi, confertim punctati pubescentes; thorax cum elytris angulum formans, angulis posticis rectis; epistoma truncatum.
·17, rufo-testaceus, elytris atris fasciatis 23. venustus.

H. Oblongi minus convexi, pubescentes; thorax haud impressus; elytra fortiter punctata lineis utrinque angustis duabus lævibus; epistoma rotundatum vix subtiliter marginatum.
·13, supra niger, capite elytrorumque fasciis testaceis, thoracis lateribus rufis 24. striatopunctatus *Mels.*

I. Oblongi, præcipue antice obtusi; thorax lateribus sæpissime marginatis, cum elytris angulum vix vel haud formantibus, his lineis nullis.
A. Pubescentes, (♂ præcipue punctati, ♀ punctulatæ;) thorax æqualiter punctatus.
f. Epistoma rotundatum late marginatum;
Ferrugineus, thorace apice et basi nigricante, elytris nigris fasciatis;
·18, thorace subtiliter marginato 25. consimilis *Lec.*
·17, thorace latius marginato, antice minus obtusus 26. undulatus *Say.*
·16, thorace latius marginato (parum infuscato,) antice magis obtusus 27. oppositus *Say.*
·15, thorace latius marginato, adhuc latior, obscure ferrugineus, elytris nigro-piceis 28. punctatissimus *Aubé.*
g. Epistoma rotundatum haud marginatum.
* Ferruginei, elytris nigris, flavo-maculatis.
α. maculis elytrorum fasciatis.
·18, H. opposito simillimus, thorace basi nigricante 29. spurius.
·17, longior, subovalis, thorace vix infuscato 30. mixtus.
β. maculis lineolatis confluentibus.
·18, convexus, subovalis, velutinus, thorace apice basique infuscato 31. sericeus *Lec.*
·16, minus convexus, subovalis, thorace haud infuscato 32. semirufus.
·08, paulo convexus, longior antice obtusus, thorace haud infuscato 33. lineolatus.
γ. elytra regulariter vittata.
·16, thorax apice basique nigricans, elytra nigra, margine vittisque utrinque duabus testaceis 34. vittatus.
** Nigri, æqualiter punctati, parum convexi; thorace sæpe vix marginato, ad angulos posticos sæpe leviter impresso.
·15, caput thoracisque latera ferruginea; elytra subfasciata 35. vitiosus.
·18, thorax elytraque maculata; longior, ovalis subtilissime punctulatus 36. catascopium *Say.*

- Fere immaculati; sæpe versus latera rufescentes; *vix conspicue punctulati,*
·20, capite thorace pedibus abdominisque lateribus piceo-rufis, illo punctulato — 37. **modestus** *Aubé.*
·20, humeris tibiis tarsisque piceo-testaceis, capite vix punctulato — 38. **axillaris** *Lec.*
·26, niger ore solo rufo piceo — 39. **fortis** *Lec.*
·21, longior postice magis acutus, pedibus ore elytrisque lateribus testaceis — 40. **notabilis** *Lec.*
distincte punctulati vel punctati,
·16, latior postice magis acutus, thorace haud impresso — 41. **niger** *Say.*
·20, longior ovalis — 42. **subpubescens** *Lec.*

B. Præcipe nigri, parum convexi; thorax inæqualiter punctatus, disco sæpe sublævi:

h. Thorax lateribus vix marginatis; elytra punctulata:

a. thorax cum elytris angulum non formans; *longiores* fere regulariter ovales
·14, parcius punctatus, vix pubescens — 43. **tartaricus** *Lec.*
·16, nigro-rufus, pubescens pectore nigro, thoracis disco fere impunctato (angustior, convexior) — 44. americanus *Aubé.*
·16, *latior*, antice magis obtusus, capite thorace, abdominis lateribus pedibusque piceo-rufis, pubescens — 45. dichrous *Mels.*

b. thorax cum elytris angulum obtusissimum formans; *angulis posticis fere rectis* (elytra sæpe testacea;)
·14, niger, vix parce pubescens, parcius punctatus — 46. caliginosus *Lec.*
·125, subtiliter pubescens — 47. subtonsus.
·12, glaberrimus — 48. varians *Lec.*

angulis posticis fere obtusis;
·12, niger subtiliter pubescens — 49. puberulus *Lec.*

i. Thorax lateribus conspicue marginatus, cum elytris angulum haud formans.
·17, niger punctatus pubescens, pedibus rufo-piceis (species dubia) — 50. **tenebrosus** *Lec.*
·17, niger punctatus pubescens, elytris pedibusque testaceis (vid synon.) — 50[1]. **lutulentus** *Lec.*
·12, niger parce punctulatus vix pubescens — 51. **vilis** *Lec.*[1]
·13, testaceo-piceus, glaber, thorace disco convexo, elytris parce punctatis — 52. **oblitus** *Aubé.*
·14, fusco-testaceus glaber, thorace fortiter marginato, elytris parcius punctulatis — 53. **collaris.**
·15, niger confertim punctatus magis ovalis, glaber — 54. **latebrosus** *Lec.*[1]

C. Ferruginei, glabri subtiliter punctulati, elytris nigris, fasciatis; thorace ad apicem late infuscato;
·14, longior fere ovalis, subtus piceo-niger — 55. **concinnus.**
·13, antice latior et obtusus, subtus ferrugineus — 56. **pulcher.**

K. Longiores, obconici glabri, elytris piceo-testaceis parce punctatis; epistoma haud marginatum, rotundatum; antennæ maris medio dilatatæ.
·2. Elytra mixte punctata et punctulata — 57. **conoideus** *Lec.*
·25, Elytra haud punctulata, parce punctata — 58. **difformis.**

L. Oblongo-ovales, vel ovales, glabri; thorax angulis posticis obtusis cum elytris angulum obtusum sæpe formans; epistoma haud marginatum, rotundatum.

k. Longiores, ovales, rude punctati;
·20, elytris punctatis, stria suturali dusabusque dorsalibus distinctis — 59. **similis** *Kirby.*
·20, elytris punctatis, striis nullis — 60. **picatus** *Kirby.*
·15, elytris punctatis et punctulatis — 61. **dispar** *Lec.*

l. Ovales punctati; thorax elytris vix angustior
·11, elytris parcius punctatis — 62. **turbidus.**

·13, elytris densius punctatis — 63. suturalis *Lec.*

m. Thorax elytris conspicue angustior ;

a. Ovales convexi ; supra testacei,

·13, elytris mixte punctatis et punctulatis — ·64. ovoideus *Lec.*

·15, densius punctatus, thoracis elytrorumque medio infuscato — 65. medialis *Lec.*[1]

·15, punctatus, elytris postice infuscatis — 66. fraternus *Lec.*[1]

β. Longiores, minus convexi, punctati vel subtile punctati ; supra piceo-testacei,

·15, thorace elytrisque vix infuscatis distinctius punctatis — 67. patruelis.

·15, thoracis medio elytrisque infuscatis, convexior — 68. lutescens *Lec.*[1]

·17, adhuc longior, thoracis medio elytrisque postice infuscatis — 69. nubilus.

·15, latior, thorace ad basin, elytris in disco infuscatis — 70. discoideus.

M. Subovati, convexi subtiliter pubescentes, epistoma ad medium late emarginatum.

·14, punctatus, testaceus, elytris nigris fasciatis — 72. hybridus *Aubé.*

·09, flavo-testaceus subtilius punctatus, elytris piceis ad latera maculatis — 73. mellitus.

The following species are not included in the above list, as I have not had specimens for examination :

From Russian America ; 74, H. griseo-striatus *De Geer ;* 75, H. oblongus *Aubé ;* 76, H. humeralis *Aubé ;* 77, H. contractulus *Mannh. ;* 78, H. ruficapillus *Mannh. ;* 79, H. rufinasus *Mannh. ;* 80, H. erythrostomus *Mannh.* No. 75 is closely allied to H catascopium *Say.* Nos. 78—81 are described in the Bull. Mosc. for 1852, pp. 304, 305.

From Atlantic America; 81, H. aulicus *Aubé ;* 82, H. nigro-lineatus *Steph.* (fide Kirby, Fauna Bor. Am. 66);

§ 1. *Synonyms and Doubtful Species.*

H. lævis *Kirby*, is possibly a variety of H. 12-lineatus *Lec.*, and according to Mr. White, (Cat. British Museum,) is H. alpinus *Paykull.*

H. ruficeps *Aubé* seems not sufficiently distinct from H. modestus *Aubé.*

H. limbalis *Mels.* is probably the female of No. 53, H. oblitus *Aubé*, with which, according to a typical specimen, H. luridipennis *Mels.* is identical.

H. discicollis *Say*, according to Dr. Harris, is H. dichrous *Mels.*, but the description is very unsatisfactory, and I have been compelled to regard it as indeterminate.

H. interruptus and H. parallelus *Say*, are not different from H. catascopium.

H. hirtellus *Lec.*, is smaller and more pubescent than H. subpubescens *Lec.* but is probably only the female of that species.

H. fasciatus *Harris* (N. Engl. Farmer, 1 ec., 1828) is H. undulatus *Say ;* the male is H. pubipennis, and the female H. velutinus *Aubé ;* for a typical specimen I am indebted to Dr. Harris.

H. proximus *Aubé* is probably H. oppositus *Say*, (vide infra No. 27.)

H. punctatissimus *Aubé* is H. niger *Say.*

H. pulicarius *Aubé* is H. lacustris *Say.*

H. nanus *Aubé* is H. affinis *Say ;* for a type I return my thanks to Dr. Harris.

Hygrotus pustulatus *Mels.* is H. cuspidatus.

H. humeralis‖ *Lec.* is now H. axillaris *Lec.*

H. luridipennis‖ *Lec.* Agassiz' Lake Superior, 216, is now H. lutulentus *Lec.* (No. 50[1].) Farther investigation, aided by more extensive series of specimens, may show the necessity of uniting with it H. tenebrosus, from which it differs principally in color.

§ 2. *Descriptions and Notes.*

1. H. farctus breviter ovalis, postice subacutus, ferrugineus glaber, capite punctulato, haud marginato, thorace confertim subtiliter punctulato, lateribus

rectis tenuiter marginatis, elytris piceis fere opacis confertissime punctulatis. Long. ·10.

One specimen from Massachusetts was presented to me by Dr. C. Zimmermann. A little less globose than H. cuspidatus, and readily distinguished by the finer and denser punctuation, and by the epistoma being without a margin.

6. H. acaroides, breviter ovalis, postice acutus, parum convexus, ferrugineus, dense subtilius punctatus, thorace margine basali nigricante, elytris costula laterali parum elevata ad medium abbreviata, alteraque externa fere obsoleta; sutura, macula magna communi ad medium, alterisque utrinque tribus nigris; postpectore abdomineque nigro-piceis, segmentis duobus ultimis ferrugineis. Long. ·10.

Illinois, Mr. Willcox; Kentucky, Mr. Wild. The elevated lines of the elytra are very slight, but may be distinctly traced; behind them, but apparently in continuation, is a linear brownish cloud which continues to the apex, outside of the three discoidal spots, which surround the large subquadrate common spot at the middle of the elytra. The spots are sometimes extended and become more or less confluent. In H. latissimus the elevated line is very short, so that it appears rather like a fold, limited externally by a moderately deep oblong fovea.

8. H. granum, breviter ovalis utrinque attenuatus, subconvexus, piceo-testaceus nitidus glaber, capite subtiliter marginato, thorace parce punctulato, lateribus rectis subtiliter marginatis, elytris subtiliter parce punctulatis. Long. ·05.

One specimen from Louisiana given me by Mr. Guex. Smaller and more convex than H. convexus, which it very closely resembles; the sides of the thorax are, however, not broadly rounded as in that species, and the punctures of the elytra are much smaller and more distant.

Desmopachria nitida *Babington* (Trans. Ent. Soc. Lond. 3, 17, tab. 1, fig. 5) does not appear by its specific characters to be different from H. convexus *Aubé*. The generic characters agree accurately, except that the posterior tarsi are not four-jointed. This, if true, would be so anomalous, that the correctness of the observer may well be doubted; nevertheless, in H. convexus the posterior tarsi are more flattened and more gradually attenuated than in the other species of the genus, and therefore the terminal joints are more closely connected; should the specimen have been mounted in the clumsy manner in which small species are frequently preserved, the articulation might be readily obscured by gum, in such manner as to be overlooked. The claws of the hind feet of the species under consideration are more slender and more bristle-like than in H. cuspidatus and allies.

8[1]. H. exiguus *Aubé*. Unknown to me. Said by Erichson (Bericht &c. in Wiegm. Arch. 1842, 2, 209) to have as a synonym Anodocheilus maculatus *Babington* (loc. cit.) from South America. The genus Anodocheilus is described as differing from Hydroporus, in having no tooth at the middle of the emargination of the mentum.

12. H. pullus, oblongus, postice vix acutus, flavo-testaceus nitidus glaber, capite vix punctulato, thorace parce punctulato, basi ad medium nigro-marginata, striola obliqua utrinque notata in elytris brevissime continuata, his distinctius punctatis, sutura vittisque utrinque tribus nigro-piceis, prima antice abbreviata et secunda approximatis, stria solita punctorum interna magis distincta. Long. ·06.

Louisiana; discovered by Dr. Schaum, to whom I am indebted for specimens. The vittæ of the elytra are quite narrow, the second one is confluent with the dark colored suture at the base; all the vittæ extend nearly to the tip; the under surface is of a uniform honey yellow color. The faint impressed discoidal line of punctures of the elytra, which may be traced in all the species, is here more distinct than usual and runs along the second vitta.

17. H. inconspicuus, oblongus, postice subacutus, flavo-testaceus, subtiliter pubescens, thorace postice punctulato, basi nigricante, striola utrinque

brevi notata in elytris longius continuata, his piceis maculis duabus ad marginem obsolete testaceis, epipleuris flavo-testaceis, postpectore abdominisque basi piceis. Long. ·06.

Mas elytris confertim subtiliter punctatis nitidis; femina elytris alutaceo-strigosis opacis.

Louisiana; for this very interesting species I am indebted to my friend Dr. Schaum. The pubescence will distinguish it from the other species, having a basal stria common to the thorax and elytra. The sides of the thorax are slightly rounded, and form with the elytra a scarcely perceptible angle.

19. H. flavicollis, oblongo-ovatus, postice subacutus, flavo-testaceus, subtiliter pubescens, thorace subtiliter punctulato, margine basali nigricante, striola utrinque brevissima notato, in elytris haud continuata, his piceis, margine fasciis duabus (anteriore interrupta) apiceque testaceis. Long. ·05.

New York? given me by Mr. Willcox. The sides of the thorax are rounded, and form a moderately distinct, but very obtuse angle, with the elytra; the anterior fascia of the latter is one-third from the base, and consists of a marginal spot and a smaller discoidal one; the second band is at one-third from the tip, and is straight and regular, extending nearly to the suture; the elytra in the only two specimens seen are moderately shining, finely and very densely punctured, but probably vary according to sex.

20. H. 12-lineatus, appears allied to H. alpinus and other European species. The female resembles closely the figure of H. bidentatus (Aubé, Col. Eur. 5, pl. 28.) H. lævis *Kirby* appears to be the same, but he states that no punctures are visible on the upper surface of the body. In comparison with H. alpinus, our species is a little narrower, and the sides of the thorax are less curved anteriorly.

21. H. scitulus, oblongus, postice subacutus parum convexus, niger subnitidus glaber, capite thoraceque testaceis, punctulatis, punctis maioribus sparsis intermixtis, hoc versus latera utrinque impresso ad basin transversim subdepresso, margine apicali et basali nigricante, disco fasciis duabus subinterruptis extrorsum connexis ornato, elytris margine basali ad humeros dilatata, laterali lineolisque pluribus flavo-testaceis ornatis, parce punctatis, utrinque fortius biseriatim punctatis, pedibus piceo-testaceis. Long. ·13.

One specimen, Eagle Harbor, Lake Superior. Allied to H. septentrionalis of Europe, but more acute posteriorly, much darker colored above, more coarsely punctured, and with the two punctured lines of the elytra distinct. The thorax is broadly rounded on the sides, and forms a distinct angle with the elytra.

22. H. striatellus, varies in color from the black type, with indistinct testaceous elytral markings to dull muddy testaceous, with short lines on the elytra, two discoidal thoracic spots, and the sides of the head fuscous. The under surface is black, and the feet dull testaceous, with the posterior thighs dark. The impressed striæ of the elytra are four on each, and are usually deep, but are sometimes shallow, though always distinct. It is found at San Francisco and San Diego, in California, and at Santa Fe in New Mexico.

23. H. venustus, ovalis convexus, postice attenuatus, confertim subtiliter punctatus, pubescens, ferrugineus, clypeo ad apicem late truncato, lateribus obliquis, thorace versus angulos posticos vage impresso, elytris atris, ad medium paulo latioribus ad apicem oblique subtruncatis, margine fasciis duabus undulatis, maculaque versus apicem testaceis. Long. ·17.

One specimen from North Carolina given me by Mr. Zimmermann. Very distinct from all others by the semi-hexagonal form of the clypeus, which is oblique each side, and truncate at the apex, with the angles well marked, and the edge very slightly reflexed. Head and thorax densely finely punctured; the latter slightly rounded and distinctly margined on the sides; posterior angles rectangular, broadly vaguely impressed; the sides make a very obtuse, not very perceptible angle with the elytra. These are black, densely punctured, finely pubescent, moderately convex, broadest about the middle, then narrowed to the apex, which is obliquely truncate; the whole margin, two undulated fasciæ not

reaching to the suture, and an angulated spot at the apex (as in H. undulatus) yellow. Body beneath rufo-testaceous, coarsely densely punctured.

27. H. oppositus Say; ?*H. proximus* Aubé. The length given by Aubé is rather less than that of any specimen seen by me; the species is very similar to the preceding, and seems distinguished principally by the margin of the thorax being a little broader, with the anterior angles not porrected; the general form is more obtuse anteriorly, and the color is usually darker, so much so that the fasciæ of the elytra are at times hardly visible. The punctures of the elytra of the female are more distinct than in H. undulatus.

29. H. spurius, ovalis, postice magis attenuatus, ferrugineus, pubescens, capite subtiliter punctulato haud marginato, thorace confertim punctulato, margine basali nigricante, lateribus marginatis cum elytris angulum haud formantibus, bis (maris) confertim subtilius punctatis striis versus suturam 2 vel 3 punctatis parum impressis; nigris, margine fasciis duabus undulatis, apiceque testaceis. Long. ·18.

One male, from Vermont, was kindly given me by Dr. Harris. This species closely resembles in form, sculpture and color, H. oppositus, but the epistoma is not margined. From H. sericeus it is distinguished by its less elliptical and less convex form, and by the large lateral spot behind the humerus not being produced so as nearly to unite the two yellow bands which are also in that species broken up into a series of linear spots hardly connected together. The male is also less finely punctured than the male of H. sericeus.

30. H. mixtus, longior ovalis, postice magis attenuatus, ferrugineus subtiliter parce pubescens, capite subtiliter punctulato, vix obsoletissime late marginato, thorace minus dense subtilius punctato, apice et basi vix nigricante, lateribus fortius marginatis, elytris parcius minus subtiliter punctatis stria suturali punctata, nigris margine fasciis undulatis duabus interruptis apiceque testaceis. Long. ·17.

One male from Nebraska. Longer and more pointed posteriorly than H. undulatus, with only a very faint transverse line representing the margin which in that species is quite distinct. The anterior angles of the thorax are not porrected, and the punctures of the elytra are larger and more distant.

32. H. semirufus, rufo-testaceus parum convexus ovalis postice attenuatus, confertissime subtiliter punctulatus, breviter pubescens, capite punctulato, thorace latius marginato, cum elytris angulum vix formante, his lineolis quatuor sutura margine basali macula postica alterisque duabus submarginalibus confluentibus nigris. Long. ·16.

Fort Laramie, Nebraska. The first of the lateral spots is placed about the middle, and is frequently not connected with the others; the second spot is about one-fourth from the apex, and internally is usually connected with the common sutural black spot near the apex. The four discoidal lines are more or less confluent, and are gradually shorter externally; the outer ones are connected with a short black basal margin.

33. H. lineolatus, longior ovalis, postice attenuatus, rufo-testaceus subtiliter pubescens, capite subtilissime, thorace subtiliter parce punctulato, hoc lateribus tenuiter marginatis, cum elytris angulum haud formantibus, margine basali nigricante, elytris subtiliter punctulatis, sutura vittisque angustis utrinque quatuor plus minusve confluentibus, maculisque externis duabus angustis nigris. Long. ·08.

Illinois; Mr. Willcox. The second and fourth black lines of the elytra reach the base; the first and third are abbreviated anteriorly; the two outer spots are narrow, as if formed by the interruption of a fifth line, of which a trace is sometimes seen on the humerus in the form of a dusky dot. Between the suture and first line is sometimes seen a very slender black line.

34. H. vittatus, ovalis, subconvexus, postice subattenuatus, rufo-testaceus parce pubescens, capite postice punctulato, thorace punctulato, apice et basi

nigricante, lateribus marginatis, cum elytris angulum haud formantibus, his punctulatis nigris, vittis duabus margine apiceque flavo-testaceis, vitta externa ad humerum cum margine confluente. Long. ·16.

Fort Laramie, Nebraska. The form of body is exactly that of H. undulatus, and the epistoma is very obsoletely transversely impressed, as in H. mixtus above mentioned, but cannot be said to be margined. The inner vitta of the elytra does not reach the base, but bends a little outwards at its extremity; towards the tip it is nearly confluent with the apical spot; the outer vitta commences at the humerus, where it is confluent with the margin, and ends at nearly one-fourth from the tip; in one specimen it is also confluent with the margin at its posterior extremity. The punctuation is alike in all the specimens seen, but it is quite likely that the females are more finely punctured, less shining and more pubescent.

35. H. vitiosus, ovalis, longior parum convexus, subtilissime punctulatus postice subattenuatus, subtiliter pubescens, niger, capite thoraceisque lateribus obscure ferrugineis, hoc lateribus marginato, cum elytris angulum haud formante, his nigris margine angusto basali, fasciis undatis duabus interruptis (posteriore indistincta) margine laterali apiceque testaceis, pedibus rufis. Long. ·15.

One specimen from Illinois; Mr. Willcox. Of the same form as H. mixtus, from which it is distinguished by its black under surface. The bands of the elytra are placed as in H. undulatus and its allies, but are much interrupted, and of the posterior one only the lateral spot and a very small discoidal dot are visible; the basal margin is testaceous towards the scutellum. The dark red of the thorax fades imperceptibly into black, in such manner as to induce me to believe, that specimens will be found having a red thorax, with only the basal margin blackish The males are probably more distinctly punctured.

41. H. niger. What I consider as Say's species resembles extremely in form, sculpture and color, H. punctatissimus, but is a little more obtuse anteriorly, and equally attenuated behind; it may be distinguished by the lateral margin of the thorax being hardly conspicuous, while in H. punctatissimus it is broad and thickened. The head is more finely punctulate, and the epistoma is not margined.

47. H. subtonsus, longior ovalis, parum convexus, parce pubescens, niger, ore rufescente, thorace lateribus vix marginatis rufescentibus cum elytris angulum obtusum formantibus, angulis posticis rectis, disco parce subtilius, ad basin et latera distinctius punctato, elytris sæpe testaceo-piceis, modice punctatis, pedibus rufo-testaceis. Long. ·125.

Lake Superior and Vermont. Resembles in appearance H. varians and H. puberulus, and likely to be confounded with them. H. varians is narrower and more oblong, the sides being almost parallel at the middle, and is entirely glabrous. H. puberulus has the posterior angles of the thorax obtuse and very distinctly impressed. The elytra of the female are less shining and less deeply punctured than those of the female.

53. H. collaris, piceo-testaceus, longior ellipticus parum convexus, glaber, thorace lateribus rotundatis fortiter marginatis cum elytris angulum obtusissimum formantibus, parce punctulato, grossius ad basin, elytris minus dense punctatis, punctis postice subtilioribus. Long. ·14.

Two specimens; Lake Superior. The usual discoidal row of punctures on the elytra is more distinct than usual towards the base of the elytra; the apical row of punctures on the thorax is likewise well marked.

56 H. concinnus, longior ovalis postice attenuatus, parum convexus, glaber, subtilissime punctulatus niger, capite, pedibus ano, thoraceque ferrugineis, hoc ad apicem late ad basin anguste nigricante, lateribus tenuiter marginatis cum elytris angulum haud formantibus, his nigris, macula quadrata humerali, fasciis angulatis duabus, margine apiceque testaceis, stria suturali punctorumque serie dorsali distinctis. Long. ·14.

Fort Laramie, Nebraska. The first fascia proceeds from the middle of the humeral spot, runs obliquely inwards, and is dilated into a quadrilateral spot with elongated angles; the second fascia is just behind the middle, and is deeply emarginate anteriorly; neither attain the suture. The anterior black band of the thorax covers nearly half the surface. In one specimen nearly the whole abdomen is ferruginous.

56. H. pulcher, ovalis postice magis attenuatus, parum convexus, subtillissime punctulatus, glaber, ferrugineus, thorace antice late, ad basin anguste nigricante, lateribus tenuiter marginatis, elytris nigris macula humerali quadrata, fasciis angulatis duabus, margine apiceque rufo-testaceis, stria suturali nulla, serie punctorum dorsali parum distincta. Long. ·13.

One specimen from Alabama, collected by Mr. Hentz, was given me by Prof. Haldeman. The color and markings are almost as in the preceding; the body, however, is broader and more obtuse in front and more acute behind; the sutoral stria is not visible, and the color beneath is ferruginous, though darker than the red of the feet, head and thorax.

58. H. difformis, longior, obconicus, glaber, ferrugineus, thorace obscuriore, disco subconvexo parce punctulato, distinctius ad latera et basin, lateribus marginatis cum elytris angulum haud formantibus, his minus dense punctatis, fuscescentibus ad basin pallidioribus. Long. ·25.

Mas antennarum articulis 4to late, 3io et 5to anguste dilatatis.

One immature specimen from Georgia. Resembles H. conoideus, but is larger, and the thorax would never become black. The punctures of the elytra are equal in size, while in H. conoideus two sizes are intermixed; the dilated third joint of the antennæ is also narrower than the fourth, while in the other species mentioned they are of equal breadth.

59. H. similis *Kirby*. This may be identical with the European H. picipes, but I have not been able to compare them. I must consider, however, that there are reasons why the following species should not be considered as H. lineellus of Europe, which is admitted to be a female variety of H. picipes.

60. H. picatus *Kirby*. Of this species I found both sexes at Mackinaw, and on the north shore of Lake Superior. The dull and finely punctured female hardly differs from the preceding, but the coarsely punctured male has no distinct elytral striæ. Otherwise there is no special difference.

62. H. turbidus, ovalis convexus, piceus, nitidus, capite pedibus thoraceque fere testaceis, hoc margine apicali et basali infuscato, elytris parum angustiore, lateribus obliquis rectis marginatis cum elytris angulum haud formantibus, antice parce punctulato, postice punctato, elytris modice punctatis, versus latera rufescentibus. Long. ·11.

One specimen from Massachusetts was given me by Mr. Zimmerman. Resembles in characters H. suturalis, but is broader and more convex, and the elytra are less densely punctured The color is more reddish, there is no discoidal spot on the thorax, and the suture of the elytra is not paler.

67. H. patruelis, longior ovalis parum convexus, nitidus subtus niger, antennis pedibus corporeque supra testaceus, fere æqualiter confertim punctatus, occipite, thoracis basi apice et medio, elytrisque postice sæpe subinfuscatis, thorace elytris conspicue angustiore, lateribus obliquis rectis anguste marginatis cum elytris angulum formantibus. Long. ·15.

Fort Laramie, Nebraska Similar in form to the Californian H. luteicens, but less convex, lighter colored, and with the sides of the thorax a little longer and almost entirely straight, and the elytra more coarsely punctured.

69. H. nubilus, longior ovalis, parum convexus, nitidus, subtus niger, antennis pedibus corporeque supra testaceus, æqualiter subtile dense punctatus, elytris lineis quatuor pone medium confusis nigro-piceis signatis. Long. ·17.

Fort Laramie; found also in Illinois by Mr. Willcox. Still longer than H. pa-

truelis, and more finely and densely punctured. The head and thorax are never clouded; the vittæ of the elytra are sometimes reduced to merely a confused cloud behind the middle; at other times they are visible nearly to the base; in the latter case the first and third are a little shorter anteriorly, and the third and fourth are interrupted before the middle. In some there is a slight remnant of an interrupted submarginal stripe. The thorax is formed as in H. patruelis, and is sometimes marked with a central fuscous dot.

70. H. discoideus, latior ovalis fere depressus (minus nitidus) subtus niger, antennis pedibus corporeque supra testaceus, capite lateribus et occipite infuscato; thorace elytris angustiore macula magna basali infuscato, lateribus late rotundatis tenuiter marginatis cum elytris angulum formantibus, elytris confertissime punctulatis disco maximo communi infuscatis, sutura lineolisque anticis paucis pallidioribus, margine late testaceo relicto. Long. ·15.

One female found at Fort Laramie. Broader and flatter than the allied species, and (in case the male should be more shining and more coarsely punctured) distinguished by the large basal spot of the thorax. The head and thorax are moderately punctured; the dark portion of the elytra is very well defined, and does not fade at all into the broad pale margin.

73. H. mellitus, subovatus convexus postice attenuatus, flavo-testaceus subtiliter pubescens, capite punctulato epistomate late emarginato, thorace subtiliter punctato lateribus tenuissime marginatis late rotundatis cum elytris angulum haud formantibus, his sat dense subtiliter punctatis, piceis, margine, lineolis ad basin maculis lateralibus duabus alteraque subapicali pallidis. Long. ·09.

One specimen from Vermont, collected by the late Prof. C. B. Adams. By the form of the epistoma it resembles H. hybridus, but is much smaller and more ovate in form, while the spots of the elytra do not form transverse fasciæ, though those that remain are referable to that style of marking.

Synopsis of the LATHRIDIIDES *of the United States, and northern contiguous Territories.*

By JOHN L. LE CONTE, M. D.

CORTICARIA Marsham.

A. Antennæ articulis 9 et 10 subæqualibus. Sp. 1—26.

1. C. grossa, fusco-testacea, longe parce cinereo-pilosa, thorace fere rotundato, capite vix latiore parce punctato, lateribus 7- vel 8-dentatis, ad basin late foveato, elytris elongato-ovalibus convexis, thorace duplo latioribus grosse vix ordinate punctatis, stria suturali postice distincta. Long. ·11.

One specimen found at the edge of a salt marsh, near Cambridge, Mass. in May. Readily distinguished from all others here described by its large size and coarse almost irregularly disposed punctures.

2. C. serricollis, elongata parum convexa picea, parce breviter cinereo-pubescens, thorace rotundato-cordato lateribus minus subtiliter serratis, confertim punctato ad basin fovea rotunda impressa transversim vage extensa; elytris oblongo-ovalibus, elongatis, thorace paulo latioribus seriatim punctatis interstitiis punctis uniseriatis minoribus notatis: antennis basi fusco-testaceis. Long. ·10.

Lake Superior, two specimens: very similar in all its characters to the next, and only distinguished by the narrower elytra, and wider and less convex thorax: the latter is somewhat less densely punctured, but the basal fovea is obsoletely prolonged each side. As in the four next species the striæ of the elytra are hardly impressed, their punctures are very distinct anteriorly, but grow small towards the tip, till they are hardly larger than the intervening rows of small points. The head just behind the eye is armed each side with an obtuse not very distinct tubercle.

3. C. dentigera elongata, parum convexa picea, parce cinereo-pubescens, thorace rotundato-cordato, lateribus subtilius serratis, confertim punctato ad basin fovea rotundata transversim obsolete expansa impresso, elytris elongato-oblongis thorace sesqui latioribus, seriatim punctatis interstitiis uniseriatim subtiliter punctulatis antennarum basi pedibusque obscure testaceis. Long. ·08.

Lake Superior: behind each eye there is a slight but more distinct and subacute tooth, from which proceeds a rigid recurved bristle.

4. C. prionodera, elongata, parum convexa, testacea parce cinereo-pubescens, thorace rotundato-cordato, dense punctato, lateribus minus subtiliter serratis, ad basin obsolete foveato, elytris oblongis, thorace paulo latioribus, distinctius seriatim rugose-punctatis, interstitiis uniseriatim punctulatis. Long. ·07.

One specimen found at San Jose, California, Related to the two preceding species, but the punctures of the elytra are larger and somewhat connected by transverse rugæ. The lateral teeth of the thorax are more conspicuous, and the basal fovea is faint: the head is about equal in width to the thorax, and has behind each eye a scarcely distinct obtuse tooth.

5. C. rugulosa, elongata parum convexa picea, parce breviter cinereo-pubescens, thorace subquadrato, latitudine vix breviore, lateribus et basi late rotundato, confertim punctulato, ad basin vage foveato, angulis posticis obtusis, elytris thorace haud sesqui latioribus oblongo-ovalibus, tenuiter seriatim punctatis interstitiis transversim rugosis punctulatis, pedibus antennisque flavis, his clava fusca. Long. ·05.

Lake Superior: the sides of the thorax are smooth anteriorly, but have a few small teeth near the posterior angles, which though obtuse are quite distinct. It is distinguished from the next principally by the thorax being very little broader than its length: the thorax varies in color becoming sometimes almost rufous.

6. C. Kirbyi, picea vel testacea, subelongata parum convexa, breviter cinereo-pubescens, thorace latitudine fere sesqui breviore, subquadrato lateribus serratis parum rotundato, angulis posticis obtusis prominulis, basi late rotundata, confertim subtiliter punctato ad basin vage foveato; elytris oblongo-ovalibus, thorace haud sesqui latioribus, seriatim punctatis, interstitiis punctulatis transversim subrugosis; antennis pedibusque flavo-testaceis. Long. ·04—·06.

Corticaria denticulata || Kirby, Fauna Bor. Am. 110.

Lake Superior, very abundant: the serrations of the thorax are less conspicuous towards the anterior angles. I do not feel certain that the former species should be separated from this: I can find no difference except the relative proportions of the thorax, and as both are found in one locality and mingled together, it is quite possible that they are really different sexes of one species; in which case the name appended to the present description must for obvious reasons be retained.

7. C. obtusa, picea, parum convexa, breviter pubescens, thorace latitudine fere sesqui breviore subquadrato, lateribus subtilissime serrulatis rotundatis, basi late rotundata, angulis posticis obtusis, confertim punctulato, ad basin arcuatim impresso elytris thorace haud sesqui latioribus oblongo-ovalibus, seriatim punctatis, interstitiis punctulatis transversim rugosis; antennis pedibusque testaceis. Long. ·05—·06.

One specimen found at New York and another at Cambridge, Massachusetts; resembles in form the preceding, but is a little broader, and is readily known by the form and sculpture of the thorax.

8. C. longipennis, elongata, cinereo-pubescens, testacea, thorace latitudine sesqui breviore lateribus antice rotundatis, basi late rotundata utrinque sinuata, angulis posticis prominulis, parce punctulato, ad basin fovea parva transversa impresso; elytris elongatis, oblongis, thorace paulo latioribus postice convexis ad apicem late truncatis, punctis quadratis approximatis striatis, interstitiis parum convexis seriatim breviter pilosis. Long. ·05.

Mas elytris abdomine multo longioribus.

Femina elytris abdomine parum longioribus, minus subito truncatis.

Cambridge, Massachusetts; in salt marsh. Very distinct by the long elytra being broadly truncate at tip, with the outer angle rounded.

9. C. scissa, elongata, testacea cinereo-pubescens, thorace latitudine plus sesqui breviore, lateribus antice valde rotundatis, basi late rotundata, utrinque sinuata, angulis posticis prominulis, sat dense punctulato, ad basin leviter foveato, elytris elongatis oblongis, thorace paulo latioribus, postice convexis ad apicem rotundatim modice truncatis, punctis quadratis approximatis seriatis, interstitiis parum convexis seriatim breviter pilosis. Long. ·045.

One female found near the mouth of the Colorado River, California. Closely related to the preceding, but the thorax is broader and more densely punctured: the general form is less elongated.

10 C. americana, picea vel rufo-testacea, oblongo-ovata, thorace latitudine fere sesqui breviore, subquadrato, lateribus antice rotundatis, basi late rotundata, angulis posticis obtusis, parce punctulato, ad basin arcuatim impresso, elytris ovalibus modice convexis subtilius seriatim brevissime pilosis. Long. ·04.

Mannerheim, Germ. Zeitschr. 5, 50.

Middle and Southern States; abundant.

11. C. expansa, longiuscula, rufo-testacea, thorace latitudine sesqui breviore, lateribus subtiliter serrulatis rotundatis, basi late rotundata, angulis posticis obtusis fere rotundatis, confertim punctulato, ad basin transversim foveato, et utrinque ad latera modice explanata, elytris oblongo-ovalibus thorace haud sesqui latioribus, modice seriatim punctatis, interstitiis seriatim breviter pilosis. Long. ·06.

California, at San Diego. The lateral impression of the thorax is very near the margin and extends from the middle to the base.

12. C. tenella, longiuscula, fusco-ferruginea, vel picea, thorace latitudine subbreviore, lateribus rotundatis subserratis, basi late rotundata, angulis posticis obtusis haud prominulis, confertim punctulato, ad basin transversim foveato, et utrinque ad latera sat profunde impresso, elytris elongato-ovalibus, thorace haud sesqui latioribus, tenuiter seriatim punctatis, interstitiis breviter seriatim pilosis. Long. ·04.

San Jose, California. By its sculpture this species seems related to C. pusilla *Mann.* (Germ. Zeitschr. 5, 48) but the form is elongate, and the elytra are not truncate at tip.

13. C. compta, longiuscula picea, thorace latitudine fere sesqui breviore, lateribus antice rotundatis, basi late rotundata, angulis posticis prominulis, rude punctato, ad basin fovea transversa impresso, elytris ovalibus convexis, thorace haud sesqui latioribus, punctis quadratis seriatis, interstitiis conciane breviter seriatim pilosis. Long. ·045.

One specimen, San Diego, California. From the next species, to which it is allied, this is distinguished by the broader thorax, and dark colored feet.

14. C. grata, longiuscula, gracilis, thorace latitudine subbreviore, lateribus rotundatis vix serratis, basi late rotundata, angulis posticis prominulis, rude punctato ad basin fovea transversa impresso, elytris ovalibus convexis, thorace fere sesqui latioribus punctis quadratis seriatis, interstitiis conciane breviter seriatim pilosis; antennarum basi pedibusque rufo-testaceis. Long. ·045.

One specimen, Lake Superior; from the next two species this is distinguished by the form and coarser punctuation of the thorax. As in C. compta, and in the next two, the beautifully regular arrangement of the hairs on the elytra causes the interstices between the striæ of quadrate punctures to appear in some lights very finely carinated.

15. C. angularis, longiuscula picea, thorace latitudine breviore, lateribus rotundatis, postice subsinuatis, basi vix late rotundata, angulis posticis prominulis, modice punctato ad basin fovea rotundata impresso, elytris

thorace latioribus ovalibus convexis punctis quadratis seriatis, interstitiis concinne seriatim pilosis; antennarum basi pedibusque rufo-testaceis. Long. ·05.

Lake Superior, one specimen. Differs from the next by its more elongated form.

16. C. cavicollis, breviuscula, rufo-picea, vel testacea, thorace latitudine sesqui breviore, lateribus valde rotundatis, postice subsinuatis, basi late rotundata, utrinque ad angulum breviter sinuata, angulis posticis magis prominulis, modice punctato, ad basin fovea subtransversa impresso, elytris thorace fere sesqui latioribus, punctis quadratis seriatis, interstitiis concinne seriatim pilosis; antennarum basi pedibusque testaceis. Long. ·04.

Mannerheim, Germ. Zeitschr. 5, 57.

Middle, Southern and Western States, not rare. Distinguished from the allied species by the broader form, and by the greater magnitude of the posterior angles of the thorax.

17. C. regularis, longiuscula, nigro-picea, thorace quadrato, latitudine paulo breviore, lateribus subcrenulatis, antice rotundatis, basi late rotundata, angulis posticis rectis prominulis, modice punctato, postice minus profunde arcuatim impresso, elytris thorace sesqui latioribus convexis ovalibus, punctis quadratis seriatis, interstitiis concinne seriatim pilosis; antennarum basi pedibusque flavo-testaceis. Long. ·06.

One specimen found in Pennsylvania.

18. C. levis, longiuscula (testacea), thorace subquadrato, latitudine fere sesqui breviore, lateribus rotundatis, basi late rotundata, angulis posticis subrectis, parce punctato, ad basin fovea transversa leviter impresso, elytris thorace latioribus, ovalibus convexis, subtiliter seriatim punctatis, interstitiis breviter seriatim pilosis. Long. ·04.

One specimen found at the Colorado River, in California. Related to C. cavicollis, but the posterior angles of the thorax are less prominent, the basal fovea is less deep, and the general form is narrower; the rows of punctures of the elytra are finer, and the interstices appear less convex and less rugous.

19. C. herbivagans, nigro-picea, longiuscula, thorace subrotundato, latitudine vix breviore, lateribus subcrenulatis, angulis posticis fere rotundatis, confertim punctato, postice tranversim arcuatim impresso, elytris ovalibus convexis, thorace haud sesqui latioribus, punctis maioribus quadratis seriatis, interstitiis seriatim concinne pilosis, antice subelevatis; pedibus paulo pallidioribus. Long. ·04.

San Francisco, California, very abundant on flowers in May.

20. C. morsa, fusco-testacea, sericeo-pubescens longiuscula, thorace latitudine vix breviore, sub-hexagono, lateribus medio angulatis, dein usque ad basin subconcavis, basi fere truncata, angulis posticis rectis, confertim punctulato, postice transversim profunde arcuatim impresso, elytris ovalibus, convexis, thorace latioribus punctis quadratis seriatis, concinne seriatim pilosis. Long. ·04.

One specimen found at the Colorado River, in California. The general proportions are very much as in C. pumila, but the thorax is very distinctly angulated at the middle on the sides.

21. C. pumila, fusca vel testacea, longiuscula, thorace latitudine vix breviore, subcordato, lateribus crenulatis, medio subangulatis, angulis posticis obtusis, basi late rotundata, sat punctato, postice arcuatim impresso, elytris ovalibus paulo convexis, thorace latioribus, subtilius striato-punctatis, interstitiis lævibus seriatim pilosis. Long. ·05.

Melsheimer, Catalogue of Described Col. 46, (synon. excl.)

Corticaria pusilla Mels. Proc. Acad. Nat. Sc. 2, 114.

Lake Superior, Massachusetts, Pennsylvania, Illinois, Georgia; abundant. Although the interstices of the elytra are furnished each with a row of short hairs, they appear entirely smooth, having neither rugæ nor punctures.

22. C. rufula, elongata, parum convexa rufo-testacea, thorace latitudine breviore lateribus rotundatis basi late rotundatis, angulis posticis obtusis, confertim punctato, postice arcuatim impresso, elytris elongato-ovalibus seriatim punctatis, interstitiis lævibus seriatim longius pilosis. Long. ·06.

San Jose and San Diego, California: this species recalls by its form C. serricollis, &c., among those just described, but the sides of the thorax are not serrate, and the sculpture of the elytra is very different.

Species unknown to me.

23. C. octodentata Mann. Germ. Zeitschr. 5, 65. *Latridius octodentatus* Say, Jour. Acad. Nat. Sc., 5, 325. Nebraska Territory.

24. C. pusilla Mann. Germ. Zeitschr. 5, 48 (excl. synon.) California.

25. C. trisignata Mann. Bull. Mosc. 1852, 361. Russian America.

26. C. spinulosa Mann. Bull. Mosc. 1852, 361. Russian America.

B. Antennæ articulis 9—11 sensim maioribus.

27. C. picta, elongata testacea glabra, thorace latitudine breviore subquadrato, angulis rotundatis, parce punctulato haud impresso, elytris thorace latioribus oblongo-ovalibus subtiliter seriatim punctulatis, interstitiis omnium subtilissime alutaceis, fascia transversa ad medium apiceque piceis, antennarum articulis tribus ultimis piceis. Long. ·05.

Middle and Southern States: rare. Varies in having the elytra piceous, with two large testaceous rounded spots on each, one behind the base and the other behind the middle. The 9th joint of the antennæ is hardly larger than the 8th, which, together with the absence of pubescence, gives to the insect a peculiar appearance, and suggests even the establishment of a separate genus for its reception.

In the next species, however, the external appearance of the ordinary species of Corticaria is resumed, though the antennæ are as in the present one.

28. C simplex, longiuscula testacea, tenuiter pubescens, thorace latitudine breviore subquadrato, angulis rotundatis, parce punctulato, postice obsolete transversim impresso, elytris oblongo-ovalibus, tenuiter seriatim punctulatis et breviter seriatim pilosis. Long. ·05.

One specimen found at the Colorado River in California. The hairs of the elytra are precisely as in the many species of the division A, but the punctures of the normal striæ are very small, hardly larger, in fact, than those of the interstices. The elytra and the club of the antennæ are somewhat fuscous.

LATHRIDIUS Herbst.

A. Antennæ articulo 9no 8vo maiore: (thorax bicarinatus).

1. L. scalptilis, elongatus, opacus rufo-testaceus, thorace latitudine longiore, pone medium maxime constricto, antice trifoveato dorso subtiliter bicarinato, carinis integris fere parallelis, antice utrinque carinula brevi externa notato, elytris thorace sesqui latioribus punctis quadratis, postice minoribus seriatis, interstitiis utrinque tribus paulo elevatis subcarinatis. Long. ·045.

Southern Illinois, Prof. Haldeman. Seems related to L. carinatus and other European and Siberian species, but the small anterior elevated line outside of the dorsal carinæ is not mentioned in any of the descriptions; it runs from the large external anterior fovea to the posterior constriction, and though fine is quite distinct; the two dorsal carinæ are parallel anteriorly, and between them is seen an oval fovea: towards the base they converge, and are continued through the transverse impression.

B. Antennæ articulis 8 et 9 subæqualibus.

* Thorax bicarinatus.

2. L. costicollis, testaceo-piceus, capite thoraceque fere scabris, illo canaliculato latitudine parum longiore, lateribus concavis, postice constricto,

angulis anticis magnis rotundatis, ante medium transversim impresso, dorso late et profunde sulcato, bicostato, costis integris parallelis, elytris ventricosis postice acutis, pone basin oblique impressis, humeris valde elevatis, crenato-striatis, interstitiis lævibus convexis. Long. ·07.

One specimen found at San Francisco; the eyes are moderate and prominent, as in the next division; the great elevation of the humeri causes the lateral outline of the elytra to be sinuous anteriorly. It is somewhat related to, but very distinct from L. angusticolis of Europe.

** Thorax haud carinatus.

† Oculi mediocres, convexi prominuli.

3. L. pulicarius, ferrugineus, elongatus, capite thoraceque fere scabris punctatis, hoc latitudine paulo longiore convexo, lateribus antice rotundatis, postice profunde transversim sulcato modice constricto, elytris nigris, vel nigro-piceis, ovalibus valde marginatis thorace duplo latioribus, confertim seriatim grosse punctatis. Long. ·035.

Lec. Melsheimer's Cat. of Described Coleoptera, 46.

Corticaria pulicaria Melsheimer, Proc. Acad. Nat. Sc. 2, 115.

Middle and Southern States: sometimes very abundant, flying at twilight. Very similar to the European L. lilliputanus.

4. L. crenatus, niger, capite thoraceque obsolete canaliculatis scabris, hoc quadrato postice subangustato, parum convexo, fortius marginato, lateribus fere rectis antice paulo rotundatis, versus basin trifoveato, foveis sulco transverso connexis, elytris ovalibus convexis, thorace duplo latioribus grosse crenato-striatis, interstitiis striis haud latioribus, antennis pedibusque flavis. Long. ·045.

Several specimens found at San Jose, California, and one at San Diego. Smaller than the next, with deeper striæ on the elytra, and narrower margin. The posterior impression of the thorax is deeper at the sides and in the middle, so that it appears like three foveæ transversely connected.

5. L. reflexus, niger, capite thoraceque scabris canaliculatis, hoc quadrato, postice subangustato, parum convexo, fortius marginato, lateribus fere rectis antice rotundatis, postice transversim valde impresso, elytris ovalibus modice convexis, thorace duplo latioribus, valde marginatis profunde crenato-striatis, interstitiis striis latioribus, antennis pedibusque flavis. Long. ·055.

New York, Illinois, Lake Superior.

†† Oculi minuti superni.

6. L. filiformis, linearis, depressus, rufo-ferrugineus, occipite coarctato, thorace quadrato-cordato, late marginato, postice modice angustato, impressione transversa postica utrinque exarata, elytris thorace vix latioribus dense crenato-striatis. Long. .045.

Dahl, Coleopt. 65, &c., &c. Mann. Germ. Zeitschr. 5, 104.

A European species, of which one specimen was found in Missouri and another at the Academy of Natural Sciences, in Philadelphia. Probably imported in articles of commerce.

7. L. parviceps, elongatus depressus, ferrugineus, capite thorace duplo angustiore, fronte subtiliter trisulcato, thorace latitudine breviore, lateribus antice rotundatis, postice haud angustato, angulis posticis rectis, valde marginato, disco antice trifoveato, postice transversim valde sulcato, elytris medio paulo dilatatis, sexseriatim variolosis, interstitiis perangustis, humeris denticulatis. Long. ·045.

A very distinct species of which I found but a single specimen, at San Jose, in California. The antennæ are shorter than in any of the preceding species, being hardly twice as long as the head.

Species unknown to me.

8. L. quadricollis Mann. Bull. Mosc. 1843, 299. Germ. Zeitschr. 5, 70.
9. L. protensicollis Mann. ibid. ibid. 5, 71.
10. L. cordicollis Mann. ibid. 300, ibid. 5, 105.
11. L. sobrinus Mann. Bull Mosc. 1852, 362. All from Russian America.

MONOTOMA Herbst.

1. M. productum, elongatum atrum opacum, parce albo-pubescens, capite pone oculos haud dentato, thorace confertissime grosse punctato, latitudine longiore, antrorsum paulo angustato, lateribus rectis subcrenatis, angulis posticis acutis, ad basin vage impresso, elytris punctatis rugosis substriatis, interstitiis angustis distinctis; pedibus nigro-piceis, antennis ferrugineis. Long. ·10.

New York. Larger than the following, and quite distinct.

2. M. fulvipes, elongatum atrum opacum, parce pubescens, capite profunde impresso pone oculos dente acuto armato, thorace confluenter rugose punctato, latitudine longiore, lateribus crenatis late rotundato, angulis posticis obtusis, anticis rotundatis productis, ad basin obsolete bifoveato, elytris piceis scabro-punctatis, rugosis minus distincte striatis, antennis pedibusque ferrugineis. Long. ·06.

Melsheimer, Proc. Acad. Nat. Sc. 2, 111.

Monotoma opaca Ziegler, ibid. 2, 271.

Pennsylvania Dr. Melsheimer. Distinct from the next species by the more elongated thorax, with produced anterior angles and fainter dorsal fovea.

3. M. foveatum, elongatum atrum opacum, parce pubescens, capite profunde impresso pone oculos dente armato, thorace latitudine parum longiore, antice subangustato, lateribus crenatis vix late rotundatis, angulis posticis subobtusis anticis prominulis subrotundatis, confluenter rugose punctato, ad basin fortius bifoveato, elytris piceis minus profunde scabro-punctatis, substriatis, antennis pedibusque ferrugineis. Long. .06.

Ohio, Mr. Wapler, two specimens.

4. M americanum, atrum, minus elongatum, opacum, parce pubescens, capite leviter impresso, pone oculos obtuse dentato, thorace latitudine fere breviore, antrorsum angustato, lateribus rectis crenatis, angulis posticis subacutis, antice vix rotundatis, antennis pedibusque ferrugineis. Long. ·07.

Aubé, Ann. Ent. Fr. 6, 461, tab.

One specimen, Lancaster Co., Pennsylvania.

5. M. parallelum, atrum elongatum, opacum, fusco-pubescens, capite leviter impresso, pone oculos obtuse dentato, thorace latitudine paulo longiore, lateribus parallelis fere rectis crenulatis, angulis posticis rectis, anticis subprominulis, confluenter rugoso-punctato, ad basin transversim vage foveato, elytris piceis minus profunde punctatis seriatim pilosis, antennis pedibusque ferrugineis. Long. ·06.

One specimen, New York. The striæ of the elytra are hardly impressed, as in the preceding species, but seem only indicated by the rows of short bristles, which, as in others, occupy the interstices.

6. M. mucidum, atrum, elongatum, opacum, fusco-pubescens, capite modice impresso, pone oculos obtuse dentato, thorace latitudine paulo longiore, antrorsum vix conspicue angustatum, lateribus crenulatis vix late rotundatis, angulis anticis subprominulis, posticis obtusis, minus profunde rugoso-punctato, postice vage transversim foveato, elytris minus profunde punctatis seriatim pilosis, antennis pedibusque ferrugineis. Long. ·055.

One specimen found at the Colorado River in California. Closely resembles in its characters the preceding, but is smaller and has the sides of the thorax less parallel.

Notes derived from observations made on the Birds of New Mexico during the years 1853 *and* 1854.

By T. CHARLTON HENRY, M.D., U. S. Army.

The following observations were made by the writer, on the Ornithology of that portion of New Mexico lying south and north-west of the Jornada del Muerto, a portion of country differing very essentially from that situated in the vicinity of Santa Fe. In special, or nearly special, reference to the Ornithology of the latter, it will be recollected that Col. McCall, late Inspector General, U. S. Army, published, somewhat more than two years ago, in the Proceedings of the Philadelphia Academy of Natural Sciences, an interesting and able article. It will be observed that the writer in the present case, having devoted his entire leisure to his favorite pursuit for a period of more than two years, while stationed at Forts Fillmore, Webster and Thorn, each in turn, has succeeded in adding largely to the list published by Col. McCall, as above referred to.

A word relative to the topography of the several locations where the observations were made.

Fort Fillmore is situated on the eastern bank of the Rio Grande, south of Santa Fe two hundred and seventy-five miles, its level above the sea being several thousand feet less than the latter place. Small mesquit and cotton-wood, with more or less "tornilla," is the principal wood to be met with in its locality. The soil is sandy, except in the bottom land, where alluvial deposit exists to a certain extent, of argillaceous character, and black loam. Fifteen miles north-east of the Fort are the Organ Mountains, but no investigations was the writer able to make there during the four months he was stationed at Fort Fillmore; the size of the garrison, to which he was Post Surgeon, precluding the practicability of his absenting himself therefrom for any length of time. August, September, October, November and part of December, were passed at Fort F. The writer was then ordered to Fort Webster, near the Sierra de los Mimbres and near the copper mines, the post being built on the banks of the Rio de los Mimbres (River of Willows) a small, rocky and beautifully clear stream.

This location was in the very heart of the mountain; the ground very elevated, and the soil along the stream exceedingly rich, being much of it black muck, with scarce a particle of clay in its composition. On the upland, where grew in profusion the nutritious "gamma grass," a limestone base was covered lightly with vegetable deposit. The face of the country was plains, narrow valleys and high mountains, alternately.

The timber consisted of white cedar, (Juniperus albus,) pinon, (Pinus monophyllus,) white pine, (P. altissimus,) scrub oak, (Q. oliviæformis,) and black walnut, among the mountains; along the brook, cotton wood, white water ash and box alder, the latter rather sparse. The geological character of the mountains is principally limestone, associated with traces of iron and lead, and silver not unfrequently found in combination. Spar, unlike the composition of the Organ Mountain range near Fort Fillmore, very little or none. Copper also, in the form of carbonate, abounds in the vicinity; also, as usual, associated with a cretaceous base; black volcanic rock, to a small extent, is to be met with.

At Fort Webster the writer passed more than a year, when he was removed to Fort Thorn, situated on the Rio Grande, some fifty miles above Fort Fillmore. Soil, timber, &c., are all similar to that found about Fort Fillmore, with a slight difference only in temperature.

With these few preliminaries, which the writer deems of some service, as bearing in a measure upon the character of the haunts frequented by certain birds, many species of which, in this region, although found in great abundance in one locality, yet in another, a few miles only distant, are never met with, he will proceed to note every bird actually met with, during nearly three years sojourn in New Mexico, of which he has, in most every instance, procured specimens.

CATHARTES.

1. C. AURA. Common during the summer months, especially along the Rio Grande; among the mountains fewer. In winter rarely seen. Most abundant in the spring and fall.

BUTEO.

2. B. BOREALIS. Breeds rather abundantly; common everywhere. Numerous specimens obtained.

3. B. PENNSYLVANICUS. Rarely met with. One near Fort Fillmore shot in September.

4. B. LAGOPUS. Not rare. Several specimens obtained. Feed much upon mallards and other ducks. Observed only once on the Rio Mimbres; not unfrequently shot while duck hunting along the Del Norte.

HALIÆTUS.

5. H. LEUCOCEPHALUS. But two or three pair seen at Forts Fillmore and Thorn, during the winter only. One young male in brown plumage obtained at Fort Webster; the only one seen there.

PANDION.

6. P. HALIÆTUS. Two or three seen at each station; one shot. Apparently not numerous. The muddiness of the Rio Grande, and the small size of the few clear streams found in the country, will probably account for it; in the first case their prey being not readily seen from above; in the second, the few fish found being very small.

FALCO.

7. F. COLUMBARIUS. Occasionally seen only; numerous nowhere. One obtained at Fort Webster.

8. F. SPARVERIUS. Common everywhere. Resident.

ASTUR.

9. A. COOPERI. One shot near Fort Webster; no other observed.

10. A. FUSCUS. Common among the mountains; very rarely seen elsewhere. Several obtained.

CIRCUS.

11. C. CYANEUS. Extremely common everywhere. Prey much upon the partridges (*L. Gambelli*) and also ducks.

SURNIA.

12. S. HYPOGÆA. A few observed upon portions of the Jornada del Muerto.

OTUS.

13. O. VULGARIS. Quite common in the fall along the Del Norte. Observed among the mountains but twice.

BUBO.

14. B. VIRGINIANUS. Common in both localities. One shot very nearly white.

CHORDEILES.

15 C. VIRGINIANUS. Very common everywhere from April to July; makes its first appearance in the latter part of March.

CAPRIMULGUS.

16. C. NUTTALLII. Found both along the Rio Grande and Mimbres; much more common at the latter place. Arrives and migrates in the latter part of October.

HIRUNDO.

17. H. PURPUREA. Not very common. Observed only at Fort Webster. Arrives about the middle of April and remains about two months only.

18. H. BICOLOR. Very common throughout New Mexico. Arrives about the 10th of April, and migrates about the last of August.

19. H. THALASSINA. Common, more particularly along the Mimbres. Arrives early in April, and leaves by the 5th of August.

20. H. RUFA. Quite common along the Rio Grande. Time of arrival a few days later than H. fulva; migrates about August 15th. A few only seen on the Mimbres.

21. H FULVA. Observed only at the Mimbres. Not numerous. Arrives the last of March and migrates the last of July.

22. H. RIPARIA. Common both in the Valley of the Del Norte and among the mountains. Arrives soon after H. thalassina, and migrates somewhat later.

MUSCICAPA.

23. M. VERTICALIS. Found in abundance among the mountains. Arrives at Fort Webster March 25th, and leaves about the 20th of August. Never seen along the Valley of the Rio Grande.

24. M SAYA. Seems to take the place of the Verticalis along the Rio Grande. Common at Forts Fillmore and Thorn. Arrives the 1st of February, and is not seen after the 25th of July, unless very rarely; one seen in January.

25. M. NIGRICANS. Rather common among the mountains. Occasionally seen along the Del Norte. Always affects the neighborhood of streams. Arrives 31st of March; not observed after the 20th of July.

26. M. PUSILLA. Not rare along the mountain streams; often observed at Fort Webster. Arrives late in May, and migrates the last of July.

PYROCEPHALUS.

27. P. RUBINEUS. One shot in May at Fort Webster; the only specimen met with; a male in full plumage.

PTILOGONYS.

28. P. TOWNSENDII. Very abundant during the winter months only, about Fort Webster, where they always frequent the neighborhood of cedar trees and feed on their berries. Arrive in October in considerable flocks, and soon separate into pairs or threes; migrate the last of March. They appear to possess no power of song, although in March they frequently utter a peculiar note, very short and interrupted. Their call note may well be compared to the slight creaking of an ungreased carriage wheel. Their call note differs from their attempts at singing in spring. Seem very retiring, and are usually met with in shady glens near a stream where cedars abound.

They do not nest in the neighborhood of the Mimbres, nor do they migrate in the spring in flocks, as far as I can ascertain. Never met with along the valley of the Rio Grande.

29. P. NITENS. Three or four pair observed about Fort Webster, and shot in June, 1853. First observed May 25th; none seen after July. Not seen on the Rio Grande. Nest on the Mimbres.

TOXOSTOMA.

30. T. REDIVIVA. Found rather abundantly about Fort Fillmore. Frequents the mesquit exclusively. More observed during the months of October and November than during the summer. A few seen during the month of August. Am unable to say whether it breeds here. Rarely seen after December. Two or three seen at Fort Thorn during December 1853. Never observed on the Rio de los Mimbres.

CULICIVORA.

31. C. CŒRULEA. Rare throughout the country. A few seen at the Mimbres during the month of April; first observed on the 12th of that month. Probably does not breed here.

SYLVICOLA.

32. S. CORONATA. Very abundant everywhere during the months of April and October. First observed at the Mimbres, April 2d.

33. S. STRIATA. One or two only observed in April at the Mimbres.

34. S. CŒRULEA. One observed at the Mimbres during the latter part of April.

35. S. ÆSTIVA. Common throughout the country in summer. Arrives in the early part of April, and migrates southward the latter part of July.

36. S. NIGRICANS. One shot May 10th on the Mimbres, the only one observed at any time.

37. S. CANADENSIS. A few observed on the Mimbres, and one along the Rio Grande near Fort Thorn, in May.

TRICHAS.

38 T. TOLMIEI. Breeds about the mountains along the Rio Mimbres. Never seen in the valley of the Rio Grande. Three specimens obtained.

39. T. MARILANDICA. Very common along the Mimbres, where it breeds; in less numbers along the valley of the Rio Grande. Arrives about the 1st of April and disappears the latter part of July.

HELINAIA.

40. H. CHRYSOPTERA. One only seen near Fort Thorn in April, 1854.

CERTHIA.

41. C. FAMILIARIS. Very common among the mountains in summer, where it probably breeds. Never seen, except in winter, along the valley of the Rio Grande.

TROGLODYTES.

42. T. OBSOLETUS. Very common among the mountains in summer, where it breeds. Not seen on the Rio Grande. Arrives at Fort Webster by the 15th of March, and disappears the last of July.

43. T. AMERICANUS. Occasionally seen only in winter and late in fall. Two or three obtained at the Mimbres and Fort Fillmore.

44. T. PALUSTRIS. Very common in summer everywhere, but most abundant along the small mountain streams where there are marshy shores. Breeds in the territory. Many winter along the Rio Grande.

PARUS.

45. P. MINIMUS. Common among the mountains. Resident. Not met with along the river.

46. P. BICOLOR. Common in winter among the mountains. Not on the Rio Grande.

47. P. WOLLWEBERI. One only seen; shot on the 10th of May, at Fort Webster.

REGULUS.

48. R. SATRAPA. Common along the Sierra de los Mimbres. Resident. Sometimes seen in winter along the Rio Grande.

49. R. CALENDULA. One or two met with among the mountains.

SIALIA.

50. S. OCCIDENTALIS. From October 20th to March 10th abundant, both among the mountains, where they feed on the cedar berries, and along the river, where they make the berries of the miseltoe their food.

51. S. ARCTICA. Much rarer along the Rio Grande than among the mountains, where they breed. Arrive about the 10th of February, and remain in the river valley but a fortnight or three weeks; among the mountains some two months, or until one brood is reared, after which they take their departure. Once seen as early as January 29th.

CINCLUS.

52. C. AMERICANUS. Very abundant on the Rio Mimbres during the whole winter, from the 10th of October until the 1st of April. Never seen along the Rio Grande, nor any where in the summer.

ORPHEUS.

53. O. POLYGLOTTUS. Quite common, both along the Rio Grande valley and among the mountains, in the summer; in both situations breeds.

54. O. MONTANUS. One shot at Fort Webster, January 27th.

TURDUS.

55. T. MIGRATORIUS. Abundant on the Mimbres during the fall and winter. Very few seen after May, till October. Very few ever seen on the Rio Grande, and when seen, only in winter. Their range confined to those parts of the country only where cedars abound.

56. T. SOLITARIUS. A few resident throughout the country.

57. T. NANUS. Very common in April on the Rio Grande, both at Forts Thorn and Fillmore. Probably migrates farther northward.

ANTHUS.

58. A. LUDOVICIANUS. A few straggling flocks observed every spring and fall, both in high and low ground.

ALAUDA.

59. A. OCCIDENTALIS. Found during the spring and winter, chiefly on open plains and elevated ground. Not resident.

PLECTROPHANES.

60. P. McCOWNII, (Lawrence). Very large flocks everywhere, especially about the margins of the Rio Grande from the 10th of October to the last of April. Their habits much resemble those of P. nivalis. Never saw any in full summer plumage, as they do not breed here.

[*Description by George N. Lawrence, Esq. Read before the New York Lyceum of Natural History, 8th Sept.*, 1851, *and published in Proceedings of that Society.*

Upper plumage pale rufous ash; each feather marked down its centre with brownish black; a line of greyish white from the bill over to the eye; sides of head brownish ash; primaries and secondaries dusky ash, greyish white margins; tertiaries brown; lesser wing coverts with rufous marks; two central feathers dark brown, pale edgings; outer tail feathers white, palish brown on outer web, rest white, terminating with dark brown; throat and abdomen greyish white; upper part of breast and under the wings ash, tinged with pale rufous; bill nearly white, tipped with brown; legs pale red. Length 5½; wing 3½; first and second quills longest and equal.]

EMBERIZA.

61. E. GRAMMACA. Arrive at the Mimbres on the 25th of April, where they remain about two months. Found only among the mountains.

62. E. GRAMINEA. Only one met with on the Mimbres, on the 8th of January, during a thaw.

63. E. PASSERINA. A few seen on the Rio Grande during the latter part of February. Two obtained.

64. E. SOCIALIS. Arrives in small numbers March 4th, and remains in the country till the last of July. Not abundant.

NIPHEA.

65. N. OREGONA. Among the mountains. A few seen during the summer, where during the winter they are extremely common. It is found also in considerable number along the river valley during the winter months.

LINARIA.

66. L. PINUS. Common everywhere, except in Summer, through the country.

CARPODACUS.

67. C. FAMILIARIS. Rather common during the months of April and May, both in high and low grounds, feeding on the buds of the cotton wood, (P. Canadensis.) Breeds, (as observed by Col. McCall,) about Santa Fe and the vicinity.

C. OBSCURUS, (McCall.) Three shot near Fort Webster; found in winter, among the pines upon a mountain. Male and female of similar plumage.

CARDUELIS.

68. C. MAGELLANICUS. Principally observed along the Rio Grande in the month of September. Its sojourn is very short. A very few seen in May at Fort Webster. Probably breeds among the mountains.

FRINGILLA.

69. F. MELODIA. Common during the winter and early spring, but not very numerous.

70. F. LEUCOPHRYS. The most abundant species of sparrow in New Mexico during the whole year, but most numerous in winter. Never have met with nest or eggs.

PIPILO.

71. P. ARCTICA. Throughout the summer remains among the mountains. Common along the Rio Grande in the winter months.

72. P. FUSCA. Like its congener, a constant resident in the territory, but unlike in never frequenting the river valley. Affects the locality of cedar bushes and mountain cañons; hence termed the Cañon Finch. (See Cassin's Illustrations.) Found at Fort Webster; equally common with P. Arctica; very shy and retiring in his habits; never found in flocks.

CORYDALINA.

73. C. BICOLOR. During the Spring of 1853 I observed a few specimens of this species. They appeared as if migrating, and I never since met with others, either in high or low land. Those seen were near Fort Webster.

COCCOBORUS.

74. C. CERULEUS. Quite common in Summer along the river valley. A few seen on the Rio Mimbres. They no doubt breed in the territory.

75. C. MELANOLEUCUS. A few seen and obtained along the Sierra de los Mimbres in the latter part of May, 1853, when they were in full song. Never seen in winter; rare.

COCCOTHRAUSTES.

76. C. VESPERTINA. A few seen among the mountains in March, 1853, and two specimens obtained.

PYRANGA.

77. P. ÆSTIVA. Rather common in summer along the Rio Grande. One or two met with in the mountains, where they are rather rare.

MOLOTHRUS.

78. M. PECORIS. Rather common everywhere from April to November. Not seen in winter.

AGELAIUS.

79. A. PHŒNICEUS. Common throughout the year. Breeds in the territory.

80. A. XANTHOCEPHALUS. Very common during the greater part of the year. Not seen in winter.

QUISCALUS.

81. Q. BREWERI. Very common during the early spring and fall months.

STURNELLA.

82. S. NEGLECTA. Common throughout the year. Most numerous in the valley of the Del Norte.

CORVUS.

83. C. CORAX. Exceedingly abundant, especially in winter. Breeds among the mountains, chiefly, but not exclusively.

84. C. AMERICANUS. Very rare, according to my observation; but two met with, and at Fort Webster.

GARRULUS.

85. G. STELLERI. A common jay among the mountains.

86. G. ULTRAMARINUS. The most abundant species; found in fall, not unfrequently along the Valley of the Rio Grande, but exceedingly numerous among the mountains.

87. G. CRISTATUS. Found about the woods bordering the northernmost portion of the Rio Grande. This I state not upon my own, but upon the authority of a person perfectly familiar with the blue jay of North America.

GYMNOKITTA, (Prince de Wied.)

88. G. CYANOCEPHALA. This extremely graceful and beautiful shaped jay I have met with along the Sierra del los Mimbres range, some five or six times. It is invariably found in flocks of forty or more individuals; very shy and difficult of approach. This is the Cyanocorax Cassini of Col. McCall. I never met this bird along the valley of the del Norte. The peculiar taper bill of this species is quite characteristic; very unlike that of the general family Corvinæ of Wilson. Its wings are also far wider in proportion than it is common to see in the jay family; and the *tout ensemble* of the bird, except its bill, would seem to my mind to ally it nearly to the Nucifragæ.

NUCIFRAGA.

89. N. COLUMBIANA. Quite common near Fort Webster, during the months of November and December. Found mostly among the pinons, (Pinus monophyllus.)

LANIUS.

90. L. LUDOVICIANUS. Common and resident in the territory, but most abundant in the winter months.

VIREO.

91. V. GILVUS. Common; the only one of this family ever obtained by me in New Mexico. From March 25th to August 15th.

ICTERIA.

92. I. VIRIDIS. A few seen during the spring and summer of 1853 on the Rio Mimbres, where they appeared to breed. Perhaps this species may be the *longicauda* of Lawrence.

BOMBICILLA.

93. B. CAROLINENSIS. One flock observed frequenting the wild currant bushes near Fort Webster, in June, 1853. I obtained two specimens in order to prove their identity. Never seen elsewhere in the territory.

SITTA.

94. S. CAROLINENSIS. A few only met with; mostly about Fort Fillmore.

95. S. CANADENSIS. Not rare among the mountains; much more common than the former.

96. S. PYGMEA. Several seen, and two shot near Fort Fillmore in 1853; none since seen.

TROCHILUS.

97. T. ANNA. Very abundant among the mountains in August and September; their haunts being flowery canons, in the neighborhood of rocky streams. Rarely met with in the valley of Del Norte.

ALCEDO.

98. A. ALCYON. Not very common; seen principally along the Rio de los Mimbres; the Rio Grande, in lat. below 30° being too murky a stream to suit his taste.

PICUS.

99. P. THYROIDEUS. Found only occasionally in fall and winter, among the mountains. Three specimens obtained. Seem quite gentle, and are readily approachable. Never seen, except in the vicinity of or among pine trees.

100. P. VARIUS This bird, rarely found elsewhere than in the mountains, is rather common in the localities which it affects.

101. P. FORMICIVORUS. Quite rare; met with among the highest pine-clad mountains only. But the specimens were very shy and difficult of approach, even when perched on the highest trees.

102. P. VILLOSUS. Quite common everywhere.

103. P. TORQUATUS. Not very rare in the mountains. Generally found among pine trees. Their shyness is very marked.

104. P. SCALARIS. Not rare along the Rio Grande. Affects principally the mesquit, (P. glandulosa,) as a resort. Not common in the mountains. Seems to take the place of P. pubescens.

105. P. MEXICANUS, or COLLARIS. A very common species throughout the territory; the most so of any other.

COCCYZUS.

106. S. AMERICANUS. A few seen in summer, along the Rio Grande del Norte.

COLUMBA.

107. C. FASCIATA. Common in the mountains during the months of September and October, when they feed upon acorns; very shy; a few breed near the old copper mines near Fort Webster. The writer has met this species on the Mimbres in June, feeding on the berries of the wild currant.

ECTOPISTES.

108. E. CAROLINENSIS. Extremely abundant everywhere, especially during the summer months. Large numbers resident.

MELEAGRIS.

109. M. GALLIPAVO. Common through all the more unsettled parts of the territory, both in high and low land. The species found here has the upper tail coverts broadly tipped with white.

CYRTONYX.

110. C. MASSENA. Not rare in the mountains; occasionally seen along the Rio Grande. Lie well to the dog, and afford much sport in shooting them. Their favorite resorts are along mountain sides, where they procure various kinds of insects, by grubbing them out with their bills, at the roots of the grass. Never detected vegetable matter in the stomachs of any. This species often hides behind stones and in hollows after being flushed.

LOPHORTYX.

111. L. GAMBELII. The common quail of this country; found both in the high and low land. They are said not to lie well to a dog, but I have proved that this is the case only in bright weather; for often in cloudy days I have seen them lie well to a well-broken pointer. Their food, unlike the Massena partridge, is exclusively, almost, vegetable. The berries of the miseltoe in winter seem to furnish their principal food.

CALLIPEPLA.

112. C. SQUAMATA. Found only in high ground, elevated plains or mountain sides. They appear to be far the shyest of their species. Their flesh I prefer to that of either of the other. Capt. J. P. McCown, U. S. A., in his notes upon this bird, as observed in Texas, published by Geo. N. Lawrence, Esq., says he "thinks they never affect open plains." But as far as my observation goes, (which is quite extended in regard to this species) although generally found in the neighborhood of bushes, particularly mesquit and wild sage, I have often seen them feeding on perfectly open rocky hills.

GEOCOCCYX.

113. G. VIATICUS. Quite common among the mesquit bushes everywhere along the Del Norte. Rarer in the mountainous parts of the country.

TETRAO.

114. T. OBSCURUS. One flock, only seen near the summit of the Sierra de los Mimbres. I state this fact on good authority, as I did not see the birds myself. All, however, agree they are not rare in the northern portions of the territory.

FULICA.

115. F. AMERICANA. Exceedingly common in every slough and pond. Resident.

ORTYGOMETRA.

116. O. CAROLINUS. A few seen passing through the country in the Spring and Fall—not abundant. A few winter on the Rio Mimbres.

RALLUS.

117. R. VIRGINIANUS. One only met with near Fort Thorn, on the Rio Grande in the Spring of 1854.

GRUS.

118. G. AMERICANUS. Quite common during March and October, on their northward and southward flight—principally the young. The adults in full plumage only occasionally seen, and never in large flocks.

CHARADRIUS.

119. C. VOCIFERUS. Very abundant during the year, with the exception of the months of November, December, and January. High as well as low grounds.

TRINGA.

120. T. BARTRAMII. Not very common—a few only seen along the grassy shores of the Rio Grande in Autumn and Spring. Probably do not breed here.

121. T. SCHINTZII. Two shot near Fort Fillmore, in October, '52. None else seen.

122. T. PUSILLA. Rather common—but in small flocks during the summer months—along the Rio Grande, and a few seen on the Mimbres.

123. T. ARENARIA. A few of this species seen in September, upon marshy grounds, near Fort Thorn.

TOTANUS.

124. T. MACULARIUS. Not abundant. A few seen every summer both at Forts Webster and Thorn.

125. T. SOLITARIUS. About as numerous as the last named variety.

126 T. FLAVIPES. Quite abundant in the months of August and September in marshes bordering the Rio Grande.

127. T. VOCIFERUS. Found along the Rio Grande in small numbers during the spring and autumn months. Not seen in flocks as the former, but in parties of two or three, and more frequently singly.

SCOLOPAX.

128. S. WILSONII. Winters on the Rio Mimbres, in small numbers. Not abundant anywhere, but more or less met with along the Del Norte in fall and spring.

129. S. DRUMMONDII? Found in pairs, occasionally, along the marshes and sloughs bordering the Rio Grande, in September and October. Some eight or ten specimens shot by the writer.

RECURVIROSTRA.

130. R. AMERICANA. Every spring and fall, a few found on the Del Norte and its vicinity.

HIMANTOPUS.

131. H. NIGRICOLLIS. During fall and spring occasionally seen, but by no means a common species. Never seen on the Rio Mimbres.

NUMENIUS.

132. N. LONGIROSTRIS. Not uncommon during the months of September and April, particularly on the Laguna del Muerto.

133. N. HUDSONICUS. One only seen and shot on the Rio Grande, near Fort Thorn, in the spring of '54.

IBIS.

134. I. FALCINELLUS. Two shot at Fort Fillmore in May, in full spring plumage. A flock of the young of this species observed, and three individuals procured near Fort Thorn, in August '51.

TANTALUS.

135. T. LOCULATOR. A few seen along the Rio Grande, during the months of September and October. More common on the sloughs near El Paso del Norte, where I saw a moderately large flock in August '54.

ARDEA.

136. A. NYCTICORAX. Quite common in summer.

137. A. LENTIGINOSA. Not very common. A few seen every summer, but only on the Del Norte.

138. A. EXILIS. Four or five seen during the summer of 1854, near Fort Thorn. Two specimens obtained.

139. A. VIRESCENS. Not very rare in summer.

140. A. HERODIAS. Quite common throughout the year. Resident.

141. A. CANDIDISSIMA. Common along the Rio Grande in summer only.

ANSER.

142. A. CANADENSIS. Resident. Breeds on the Rio Grande. Found in tolerable abundance throughout the winter. Not so common in summer. A few breed along the river.

143. A. ALBIFRONS. I have never seen but three of this species, of which I shot two at Fort Thorn in the fall of 1854. Said to be quite common a hundred and fifty miles higher up the Rio Grande del Norte.

144. A. HYPERBOREUS. About as common as the albifrons. Few seen below Albuquerque.

ANAS.

145. A. BOSCHAS. Extremely common everywhere in winter. Many resident throughout the year. Breed in greater or less number.

146. A. OBSCURA. Rare. A few seen on the Rio Grande every spring, on their passage north.

147. A. STREPERA. This beautiful duck is even more common than the Mallard in ponds adjoining the Rio del Norte, but only during the spring and winter months. Never observed after April till the last of October. Rare on the Rio Mimbres.

148. A. AMERICANA. Not rare, both along the Del Norte and Mimbres in fall and winter.

149. A. ACUTA. Much rarer than the last. A few seen every spring and fall on the Del Norte.

150. A. SPONSA. But two or three ever met with, and only on the Rio Mimbres.

151. A. CAROLINENSIS. Quite common during the spring and fall along the Del Norte. Many winter on the Mimbres. Not met with in the summer.

152. A. DISCORS. Not as common as the last.

153. A. RAFFLESII. This beautiful duck is the most common summer duck found between latitudes 31° and 33°. Rarely seen in winter. Probably breeds in the section where it abounds in summer. Very common on the Mimbres and Del Norte. It is usually found among the sedge that borders sloughs near a watercourse, where its plumage, so closely resembling the reddish brown of the withered sedge of last year's growth, renders it observed with difficulty, thus carrying out that admirable rule in nature's handiwork that so generally prevails, viz., assimilation of the plumage of birds to the color of the haunts they affect.

154. A. CLYPEATA. Rather rare. Occasionally seen in fall and spring on the Del Norte and Mimbres.

FULIGULA.

155. F. VALISNERIANA. Found not unfrequently in fall and winter about the brackish sloughs near the Del Norte. Are the least shy of any species, and almost invariably found in excellent condition for the table. Never seen on the Mimbres.

156. F. FERINA. But three or four ever obtained.

157. F. MARILA. Rather common along the Rio Grande in winter. Also frequents to a considerable extent brackish sloughs.

158. F. RUFITORQUES. Rare. A few seen on the Mimbres, and occasionally along the Del Norte in winter.

159. F. RUBIDA. Occasionally seen in ponds near the Rio Grande in winter, and always in very poor condition especially the young.

160. F. ALBEOLA. About as common as the last. Found also in scattering numbers on the Mimbres in the spring months.

MERGUS.

161. M. MERGANSER. Not rare along the Rio Grande and Rio Mimbres during the fall and winter.

162. M. CUCULATUS. Met with only on the Rio Mimbres in the winter and spring.

PHALACROCORAX.

163. P. FLORIDANUS. Several shot in the spring of 1851 near Fort Thorn, in a brackish pond near the Del Norte.

PLOTUS.

164. P. ANHINGA. Two seen in September, 1851. One obtained, a female in full plumage.

PELECANUS.

165. P. AMERICANUS. Rather common in Albuquerque. In latitude 32° occasionally seen on the river in August.

STERNA.

166. S. NIGRA. Seen not unfrequently in September near Fort Thorn.

167. S. HIRUNDO. Met with near Fort Thorn in the month of August.

LARUS.

168. L. ZONORHYNCHUS. A few met with along the Del Norte during the summer months.

COLYMBUS.

169. C. GLACIALIS. A female obtained near Fort Thorn in the month of October.

The muddiness of the waters of the Del Norte below latitude 31° prevents, no doubt, its being found at all common.

PODICEPS.

170. P. CAROLINENSIS. Common in every pond of any size. Resident. The writer once took from the stomach of one an entire Mus arvensis, or field-mouse.

Analyses of the Meteoric Iron from Tucson, Province of Sonora, Mexico.

By Dr. F. A. GENTH.

The masses of Meteoric Iron of Tucson, first brought to notice by Dr J. L. Le Conte, (Sill. Journ. II. Ser. XIII. 289,) and afterwards more fully described by Prof. C. U. Shepard, (Sill. Journ. II. Ser. XVIII, 369,) were also mentioned by

Dr. J. L. Smith in his Memoir on Meteorites, published in the last number of the same Journal, March 1855, in which he gives the analysis of a piece cut from one of the huge masses by Lieut. Jno. G. Parke, of the U. S. Topographical Engineers. Several months ago I had finished the following analyses of the same meteorite, (which will be found to agree very well with those of Dr. Smith.) but various circumstances have heretofore prevented my presenting to the Academy the results of my examinations, which were made with pieces taken from the specimen presented to the collection of the Academy of Natural Sciences, by Dr. Heermann.

To the descriptions of this meteorite given by D. C. U. Shepard and Dr. J. L. Smith, I have to add only a few words.

The pieces which I have examined were not passive, as Prof. Shepard remarks, but dissolved readily in nitric acid, and also immediately precipitated metallic copper from the solution of the sulphate. On dissolving it in chlorohydric acid, only a slight odor of carburetted hydrogen was perceptible, and no gas evolved, which precipitated an ammoniacal solution of chloride of copper; a very small quantity of Schreibersite separated in form of a brownish powder.

On evaporation of the solution by nitric acid in a waterbath and subsequent moistening of the dry mass by chlorohydric acid, all the substances were taken up, excepting a small residue of siliceous matter. This dissolved partly on boiling with carbonate of soda, leaving a residue, which I took for a feldspathic mineral; the quantity obtained, however, was too small for further examination; the small quantities of alkalies, lime and alumina speak in favor of this view, and indicate that the residue insoluble in carbonate of soda is labradorite, a mineral which is partly decomposed by acids. The silica, soluble in carbonate of soda, results undoubtedly from the decomposition of olivine. I was particularly careful to obtain the whole quantity of cobalt and nickel, and have, therefore, not separated the sesquioxide of iron by carbonate of baryta, which method is not quite correct; but have precipitated the boiling solution, containing sesquioxide of iron, oxide of cobalt and nickel, magnesia, etc., and a sufficient quantity of chloride of ammonium by ammonia, and immediately afterwards acidulated by acetic acid, boiled and filtered. All the other determinations were made as usually.

The following results were obtained.

	I.	II.	III.
Copper,	0.008	not estimated.	not estimated.
Iron,	83.472	not estimated.	83.637
Cobalt,	0.420	0.366 }	9.851
Nickel,	9.441	8.689 }	
Chrom,	not estimated.		0.174
Alumina,	traces.	traces.	traces.
Magnesia,	2.593	2.030	2.147
Lime,	0.463	0.550	not estimated.
Soda,	not estimated.	not estimated.	0.174
Potash,	not estimated.	not estimated.	0.098
Phosphorus,	0.103	not estimated.	0.150
Silica,	2.889	not estimated. }	4.169
? Labradorite.	1.046	not estimated. }	

Notice upon the viviparous Fishes inhabiting the Pacific coast of North America, with an enumeration of the species observed.

By CHARLES GIRARD.

The observations which we have traced upon the genital apparatus of the female, have satisfied us that there exists an ovarian sheath or sack, which, during the early period of pregnancy, is an elongated and subcylindrical tube, containing the ovaries proper, two in number, each of which consisting of two, three, or more vascular membranes, attached by their upper edge to the upper

floor or roof of the sheath, forming either one, two, or more pouches (according to the number of these membranes) of the same length as the sheath itself, widely open beneath, though not in a direct communication with one another, since the membranes hang loosely down, resting on the lower floor of the sheath.

The eggs are formed within the texture of the ovarian membranes themselves. We have examined the ovaries of *Ennichthys heermanni*, when the sheath, within which they were contained, was not larger than an ordinary quill. Numerous eggs could be observed in a very immature state, appearing to the naked eye like minute dots. Under the microscope, they exhibited evident traces of the germinal vesicle, surrounded as yet with a very scanty supply of vittiline substance.

The sheath and the ovaries are gradually increasing in bulk, as the eggs themselves first increase in size and the embryos afterwards. The sheath is a muscular membrane chiefly, whilst the ovarian membranes, we have stated, are altogether vascular.

When mature, the eggs either fall into the space between the membranes or ovarian pouches, or else remain attached to the ovaries until the embryos issue out of them. We are inclined to think that they drop into the pouches as eggs. At any rate, we found very young embryos loosely contained in the ovarian pouches, when no trace of the egg membrane could be seen within the tissues of the ovaries in the shape of corpora lutei or graffian vesicles. Whatever be the case, numerous eggs or embryos may be observed within one pouch. The young thus remain together until grown to a considerable size, when, filling up the space in a more compact manner, the ovarian membranes, in their nature very expansive, will extend a fold between each embryo. In this manner every individual young, when removed sideways from the ovary, appears to the operator as if enclosed in a separate cavity, pouch, or follicle, of the ovary, whilst, in reality, the membranes may be stretched out or extended, and the entire progeny loosened from all adherence or connection with them.

The male organs of generation consist of two spermaries, a right and a left, perfectly independent from one another, having each its separate duct, discharging their contents into an elongated cloaca, into which the bladder, likewise, empties its contents. This cloaca communicates with the exterior by a subcircular opening, the edge of which being rather protruding. Such is that apparatus—the same in its general structure as in the other osseous fishes. There is no sheath enclosing the two spermaries, and this fact throws a considerable light upon the morphology of the ovaries: the latter being in fact two in number, but so closely connected together as to simulate a single organ. Thus the general disposition, not the plan of structure, of these organs, is adapted to the mode of reproduction—a single sheath being a more simple adaptation than two, one for each ovary.

How the mechanical act of fecundation takes place we are not prepared to say from direct observations; the eggs themselves must be fecundated within the ovarian sheath; a copulation of some sort is therefore required, and it is not improbable that at this period the eggs have dropped from the ovarian membranes into the pouches, or spaces between these membranes, in which they are freely floating.

The hatching of the embryos takes place at an early period. After leaving the egg shell, they have an abdominal bag containing the remaining yelk, which is to be gradually absorbed during a period when neither the mouth nor the œsophagus are formed; the fins have not yet appeared. The visual organs begin with a deposition of an external layer of black pimentum, in every respect similar to the same organs in invertebrata. The head is anteriorly rounded, and the cleft of the mouth not yet apparent at the period when the fins begin to develop. The caudal has the start over all other fins; its posterior margin is first lanceolated, then rounded, with a convexity gradually diminishing until it is perfectly straight, when a gradual emargination commences, and from a slight crescent reaches the forked shape which it assumes in the adult. The soft and articulated portion of the dorsal and anal fins, next assume a development reaching extra-

ordinary proportions, which they again gradually lose so soon as free from parental sheltering. The posterior portion of these fins is especially to be noticed, as longer or deeper than the anterior portion (the reverse of what we observe in the adult,) and extending generally beyond the base of the caudal fin, a character, therefore, not exclusively proper to the genus *Rhacochilus*. The spinous portion of these same fins, on the other hand, develop but slowly and gradually, reaching their full growth at a late period. The ventrals and pectorals are likewise tardy in their appearance. The scales are fully developed before the young leave the ovary.

Genus EMBIOTOCA, Agass.

Head of moderate development; mouth small; upper jaw slightly the longest. Lips thick and fleshy; lower one attached by a frenum to the symphysis of the dentary (chin). Intermaxillaries protractile. Teeth in both jaws, short, conical, blunt, slightly recurved and disposed upon one single row. Pharyngeal teeth pavement-like. Spinous portion of dorsal fin generally lower than the soft; the greatest difference in height between the two being observed upon their contiguity. Five or six branchiostegal rays. Scales of medium development; lateral line well marked, continuous from head to base of caudal, and concurrent with the dorsal outline. No scales upon the fins.

SYN. *Embiotoca*, AGASS. Amer. Journ. of Sc. Second series, xvi. 1853, 386; and xvii. 1854, 366.

1. EMBIOTOCA JACKSONI, Agass.—General form subelliptical. Anal broadly rounded upon its external margin; origin of latter fin situated opposite the sixth or seventh articulated ray of the dorsal. Tips of pectorals reaching a vertical line intersecting the base of the third articulated ray of dorsal fin. Eyes rather of small than of medium size. Posterior extremity of maxillary reaching a vertical line, passing in advance of anterior rim of orbit. Frontal region slightly depressed above the eyes. Branchiostegals five in number. About sixty scales in lateral line. Female, uniform dark purplish brown; male, olive brown, with diffused darker blotches.*

SYN. *Embiotoca jacksoni*, AGASS. Amer. Jour. of Sc. Second series, xvi. 1853, 387; and xvii., 1854, 366.—GIRARD, in Proc. Acad. Nat. Sc. Philad. vii. 1854, 151.

Locality.—San Francisco, Cal. Collected by Dr. A. L. Heermann.

2. EMBIOTOCA CASSIDYI, Grd.—General form subellipsoid. Frontal region very slightly depressed above the eyes. Anal undulated upon its external margin; its origin being opposite the third articulated ray of the dorsal fin. Tip of pectorals reaching a vertical line that would intersect the base of the last spiny ray of the dorsal. Eyes above the medium size. Posterior extremity of the maxillary not reaching the vertical of the anterior rim of the orbit. Branchiostegals six in number. Fifty-seven scales in the lateral line. Purplish brown, with about twelve transparent bands of a deeper hue.

SYN. *Embiotoca cassidyi*, GRD. in Proc. Acad. Nat. Sc. Philad. vii. 1854, 151.

Locality.—San Diego, Cal. Collection of Lieut. W. P. Trowbridge, U. S. A.

3. EMBIOTOCA WEBBI, Grd.—General form ellipsoid. Frontal region subconcave; occiput prominent. Anal undulated upon its external margin; its origin being opposite the fifth articulated ray of the dorsal. Tip of pectorals reaching the vertical of the third articulated ray of dorsal fin. Eyes above the medium size. Posterior extremity of maxillary extending to the vertical of anterior rim of orbit. Branchiostegals, five on right side, six on the left. Fifty-four scales in the lateral line. Olive brown, with indistinct purplish blotches.

Locality.—San Diego, Cal. Collection of Lieut. W. P. Trowbridge, U. S. A.

4. EMBIOTOCA LINEATA, Grd.—Body subelliptically elongated. Anal fin elon-

* The coloration of this and of all the following species is described as extant on specimens after a long immersion in alcohol.

gated, with external margin nearly straight, diminishing gradually in height posteriorly; its origin being opposite to the sixth articulated ray of the dorsal. Tip of pectorals reaching a vertical line intersecting the base of last but one dorsal spine. Eyes of medium size. Posterior extremity of maxillary even with the vertical of anterior rim of orbit. Frontal region slightly depressed above the eyes. Branchiostegals five in number. Sixty-two scales in lateral line. Ground color of upper regions dark olive or reddish brown; reddish yellow beneath. Sides of abdomen with light longitudinal stripes intersecting the point of union of the rows of scales. Anal fin deep purple, with a yellowish vitta at its base.

Syn. *Embiotoca lineata*, Grd. in Proc. Acad. Nat. Sc. Philad. vii. 1854, 134 and 151.

Locality.—Bay of San Francisco, Cal. Collected by Dr. A. L. Heermann.

5. Embiotoca ornata, Grd.—General form subelliptical. Posterior extremity of maxillary extending to a vertical line, which would pass behind the posterior nostrils. Eyes of medium size. External margin of anal nearly straight; its origin being opposite the fifth articulated ray of dorsal. Tips of pectorals falling under the vertical of the tenth dorsal spine. Branchiostegals five in number. About sixty-four scales in the lateral line. Color dark brown above; flanks and abdomen yellowish golden, with purple stripes along the line of union between the rows of scales. Scales on thoracic region provided with a central purple spot.

Syn. *Embiotoca lineata*, Grd. in Proc. Acad. Nat Sc Philad. vii. 1854, 151.

Locality.—San Diego, Cal. Collection of Lieut. W. P. Trowbridge, U. S. A.]

6 Embiotoca perspicabilis, Grd.—Body subelliptically elongated. Frontal region gently declive. Eyes of medium size. Posterior extremity of maxillary not quite reaching the anterior rim of the orbit. Anal fin long; its anterior undivided rays longer than the rest, and its origin situated opposite the twelfth articulated ray of dorsal. Tips of pectorals reaching the vertical line intersecting the base of last dorsal spine. Five branchiostegal rays. Sixty-three scales in lateral line. Deep purplish brown above, lighter beneath. Flanks with light narrow longitudinal stripes intersecting the point of union of rows of scales. Dorsal, caudal anal and ventral fins reddish purple; pectorals yellowish.

Locality.—Fort Steilacoom, Puget Sound. Collected by Dr. Geo. Suckley, U. S. A.

Genus DAMALICHTHYS, Girard.

Head well developed. Eyes large. Mouth of medium size; upper jaw protruding considerably over the lower one. Teeth few in number, short and subconical, disposed upon one row only. Lips of moderate thickness; lower one firmly attached to the symphysis of the jaw. Opercular apparatus very much developed and covered with large scales. Anterior portion of soft dorsal very high. Peduncle of tail slender; caudal fin deeply forked. Anal elongated; its anterior portion the deepest. Ventrals and pectorals proportionally large.

7. Damalichthys vacca, Grd.—Male provided with a subpyriform sac upon the anterior third of anal. Branchiostegals five in number. Ground color greyish olive. Scales with a golden and silvery metallic reflect. Fins unicolor.

Locality.—Fort Steilacoom, Puget Sound. Collected by Dr. Geo. Suckley, U. S. A.

Genus PHANERODON, Girard.

Head rather small. Mouth small; jaws equal. Lips thin; lower one attached by a very narrow frenum to the symphysis of its jaw. Intermaxillaries very protractile. Teeth large and subconical, disposed upon a single row on both jaws. Spinous portion of dorsal fin as high as the soft. Anterior articulated rays of anal undivided and preceded by three spinous rays, shorter than the articulated ones. Scales well developed. Lateral line concurrent with the dorsal outline.

Scales on the base of caudal rays. Dorsal groove extending from middle of spinous portion of dorsal fin to last third of soft portion. Sheath formed by two rows of scales anteriorly, and one only posteriorly.

SYN. *Phanerodon*, GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 153.

8. PHANERODON FURCATUS, Grd.—General form elongated, rather tapering posteriorly, and very much compressed. Cleft of mouth not extending to the anterior rim of the orbit. Eyes large and circular. Branchiostegals five in number. Caudal slender and deeply forked. About sixty-three scales in lateral line. Yellowish brown above; lighter on the sides; whitish under the throat. Fins yellowish. Margin of dorsal and caudal greyish. A diffused marginal spot upon the anterior portion of anal.

SYN. *Phanerodon furcatus*, GRD. Proc. Acad. Nat. Sc. Philad. vii. 1824. 153.

Locality.—Bay of San Francisco, Cal. Collection of Lieut. Trowbridge, U. S. A.

Genus ABEONA, Girard.

Head of medium size; mouth very small; jaws equal. Lips rather thin; lower one attached by a frenum to the symphysis of the jaw. Intermaxillaries protractile. Teeth stoutish, conical, disposed upon one single row on both jaws. Branchiostegals five in number. Spinous portion of dorsal fin higher than the soft; line of separation between both of these slightly depressed. Articulated rays of anal all divided; spiny rays three in number, well developed; base of that fin rather short. Scales of moderate size. Lateral line concurrent with the dorsal outline. No scales upon the fins. Dorsal groove extending nearly to the whole base of the fin. Sheath formed by two rows of scales.

9. ABEONA TROWBRIDGII, Grd.—General form subelliptical. Head subconical; snout abbreviated; mouth small; posterior extremity of maxillary not reaching the vertical of anterior rim of orbit. Eyes large and circular. Branchiostegals five in number. Forty-one scales in lateral line. Olive or reddish brown above; silvery on the sides and abdomen. Flanks blotched. Fins yellowish, except anal, which is purplish, with its anterior portion spotted.

SYN. *Holconotus trowbridgii*, GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 152.

Locality.—Not precisely known; San Francisco, Monterey, or San Diego, Cal.

Genus HOLCONOTUS, Agass.

Head well developed. Mouth small; jaws equal; lower one projecting slightly when mouth opens. Lips thin; lower one free all around. Intermaxillaries protractile to a considerable extent. Teeth small, slender, subconical, slightly curved, disposed upon a double row on the upper jaw and one only on the lower. Spinous portion of dorsal fin higher than the soft. Anterior articulated rays of anal mostly all divided, and preceded by three spines shorter than the other rays. Scales rather large. Lateral line concurrent with the dorsal outline. No scales on the fins. Dorsal groove extending from opposite middle of spinous portion of dorsal fin to beyond the middle of soft portion of same fin. Sheath formed of but one apparent row of scales, tapering posteriorly.

SYN. *Holconotus*, AGASS. Amer. Journ. of Sc. Second series, xvii. 1854, 367.

10. HOLCONOTUS RHODOTERUS, Agass.—General form elongated, neither elliptical nor fusiform. Frontal region subconcave. Head subconical; mouth small; posterior extremity of maxillary not quite reaching the vertical of anterior rim of orbit. Eyes rather large and circular. Branchiostegals five in number. About forty-four scales in lateral line. Bluish grey or olive above, silvery or yellow upon the sides, with rose-colored spots disposed in longitudinal series.

SYN. *Holconotus rhodoterus*, AGASS. Amer. Journ. of Sc. Second series, xvii. 1854, 368.—GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 141 and 152.

Localities.—From California to Oregon. Collections of Lieut. R. S. Williamson, Lieut. W. P. Trowbridge and Gov. I. I. Stevens.

Genus ENNICHTHYS, Girard.

Head of medium size. Mouth large and oblique; lower jaw projecting beyond

the upper. Lips thin, lower one free all around. Intermaxillaries slightly protractile. Teeth small, slender and conical, disposed upon a double series on both jaws. Spinous portion of dorsal fin higher than the soft. Anterior articulated rays of anal divided like the rest, and preceded by three small spines, lower than the articulated rays. Scales of moderate development. Lateral line concurrent with the dorsal outline. Scales upon the base of caudal and anal fins. Dorsal groove rather short. Sheath formed anteriorly by three rows of scales, tapering posteriorly.

11. ENNICHTHYS MEGALOPS, Grd.—General appearance gibbous. Dorsal sheath very short. Mouth large and oblique. Eyes very large, circular. Four rows of scales on preopercle. Branchiostegals six. Eighty-five scales in lateral line. Ash or greyish brown above. Sides and abdomen dull yellow or white; a diffused spot upon anterior third of anal. Other fins yellowish; tips of pectorals blackish or deep purple.

SYN. *Holocomotus megalops*, GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 152.

Locality.—San Francisco, Cal. Collection of Lieut. W. P. Trowbridge, U. S. A.

12. ENNICHTHYS HEERMANNI, Grd.—General form subelliptical; snout subconical; mouth moderate; posterior extremity of maxillary, even with a vertical line, intersecting the centre of the pupil. Eyes of medium size. Branchiostegals six. About sixty-two scales in lateral line. Back olivaceous; sides and abdomen silver and golden; flanks with indistinct transverse bars or bands. Fins unicolor, yellowish and greyish.

SYN. *Amphistichus heermanni*, GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 135.

Locality.—San Francisco, Cal. Collected by Dr. A. L. Heermann.

Genus AMPHISTICHUS, Agass.

Head rather large. Mouth large; jaws equal. Lips thin, lower one attached by a frenum to the symphysis of the lower jaw. Intermaxillaries slightly protractile. Teeth stoutish, recurved, conical and disposed upon a double row on both jaws. Spinous portion of dorsal fin generally lower than the soft, and sometimes equal to it in height. Anterior articulated rays of anal divided like the rest and preceded by three spines, the second and third of which being nearly as deep as the first articulated ray. Scales of moderate development. Lateral line concurrent with the dorsal outline. One row of scales along the base of anal. The dorsal groove extends from middle of spinous portion of dorsal fin to about the middle of soft portion of same fin. Sheath formed by two rows of scales anteriorly, tapering into one posteriorly.

SYN. *Amphistichus*, Agass. Amer. Journ. of Sc. Second series, xvii. 1854, 367.

13. AMPHISTICHUS ARGENTEUS, Agass.—General form subelliptical, more convex above than below. Snout anteriorly rounded. Posterior extremity of maxillary reaching a vertical line passing behind the pupil. Anterior anal spines rather large. Sixty-eight scales in lateral line. Branchiostegals, six. Bluish grey above, sides silvery, with indistinct olivaceous transverse bands. Vertical fins and ventrals olivaceous; pectorals yellowish.

SYN. *Amphistichus argenteus*, Agass. Amer. Journ. of Sc. Second series, xvii. 1854, 367.—GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 141 and 153.

Locality.—San Francisco, Cal. Collected by Dr. A. L. Heermann.

14. AMPHISTICHUS SIMILIS, Grd.—General form regularly subelliptical. Snout subconical. Posterior extremity of maxillary reaching a vertical line passing in advance of the pupil. Spinous portion of dorsal as high as the soft. Anterior anal spines rather small. Branchiostegals, five. Bluish grey above; sides silvery. Dorsal and caudal greyish yellow; anal, ventrals and pectorals dull yellowish.

SYN. *Amphistichus simulis*, GRD. Proc. Acad. Nat. Sc. Philad. vii. 1854, 135.

Locality.—Bay of San Francisco, Cal. Collected by Dr. A. L. Heermann; also in Collection of Lieut. W. P. Trowbridge.

Full descriptions, accompanied with figures of all the species above enumerated, are ready for the press, and will shortly be published by Congress.

Descriptions of New Species of Birds from Western Africa, in the collection of the Academy of Natural Sciences of Philadelphia.

By JOHN CASSIN.

1. BARBATULA DUCHAILLUI, nobis.

Form.—About the size of *Bucco philippensis*, Briss. Wing with the first quill spurious, fourth longest, but slightly longer than the fifth, tail somewhat rigid, legs moderate, tarsi rather long, toes long.

Dimensions.—Total length (of skin) male 5½ inches, wing 3¼, tail 1¾ inches.

Colors.—Throat, neck before and breast glossy blue-black, which color bifurcates and is continued on each side of the abdomen. Head above scarlet, a line from above the eye running downwards, on the side of the neck, light sulphur yellow. Upper parts black, with a steel blue lustre, the lesser wing coverts and many feathers of the back with small cordate and oval spots of sulphur yellow, greater wing coverts edged and feathers of the rump tipped with the same. Quills brownish black, edged on their inner webs with yellowish white, and on their outer webs with sulphur yellow. Middle of the abdomen and ventral region pale yellow, sides (from the breast to the flanks) and under tail coverts greenish yellow, all the feathers of which are widely tipped with that color and black at base. Tail brownish black, bill and feet dark. Female similar to the male, but with the colors less vivid. Another specimen (female) has many of the spots on the upper parts changed to chestnut color, and a trace of the same on the sides.

Hab.—Moonda river, Western Africa, discovered by Mr. P. Belloni Du Chaillu.

Obs.—This handsome species, though apparently properly belonging to this group of the *Bucconinæ* is unusually large. It does not closely resemble any other with which I am acquainted in any considerable degree, though of the general appearance of the smaller African species.

This bird is named in honor of its discoverer, Mr. P. Belloni Du Chaillu, an enterprizing young traveller, who has explored extensive and almost unknown regions of Western Africa, near the Equator, and whose discoveries in zoological and geographical science are in a high degree important and interesting. Mr. Du Chaillu ascertained the existence of three ranges of mountains at a distance of 150 miles from the coast, in which he traced the river Moonda to its source. The birds described in the present paper were collected during his journey along the course of this river. In his collection there are also numerous species hitherto little known, of which, and of those now described, his ample and interesting notes have been most kindly placed at my disposal, and will be published at my earliest leisure.

2. BARBATULA FULIGINOSA, nobis.

Form.—About the size of the preceding. Bill short, straight, wide, first quill spurious, fifth slightly longest, tail short, legs moderate, toes long. Belong apparently to the genus *Gymnobucco*, Bonap., and much resembles *Gymnobucco calvus* in form and color, but is smaller and has the head covered with feathers, and the toes much longer.

Dimensions.—Total length (of skin) male, 5¾ inches, wing 3¼, tail 2 inches.

Colors.—Head above dull yellow, throat cinereous, all other parts of the plumage above and below fuliginous brown, some feathers on the abdomen, flanks and rump obscurely edged with greenish yellow. Quills brown, paler on the inner webs, tail dark brown, with a tinge of greenish yellow. Bill horn color, legs dark.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. Belloni Du Chaillu.

Obs.—This species, of which Mr. Du Chaillu assures me that his specimens are adult birds, and of which male, female, and young are in his collection, is very similar to *Gymnobucco calvus*, Bonap., which is also in the collection of the Academy. The head above, however, is not bare as in that species, but fully feathered, and this bird is smaller, though the legs and toes are stronger, and the latter much longer. The bill is very nearly of the same form as in that species, being wider vertically and shorter than in other African birds of this group. This

species and *G. calvus* probably form a distinct subgenus, but the name given to it by the Prince of Canino is not appropriate so far as relates to our present bird.

3. DICÆUM RUSHIÆ, nobis. Mrs. Rush's Warbler.

Form.—Very small, bill slender, curved, first quill spurious, fourth and fifth longest and nearly equal, tail short, legs and feet rather stout. Plumage of entire head and breast scale-like and rough to the touch.

Dimensions.—Total length (of skin) male, 3 inches, wing 1¾, tail 1 inch. Female slightly smaller.

Colors.—Every feather of the head above, neck, back, throat and breast with a central line of brown (sienna) and edged with ashy white, the brown darkest and predominating on the head, and palest but much predominating and giving the prevailing color on the back; the ashy white predominating on the throat and breast. Abdomen, rump, and tail coverts above and below pale yellow, tinged with greenish. Quills brown, edged with white on their inner webs, tail dark brown, nearly black. Bill with the upper mandible black, under mandible white at base and tipped with black, tarsi and toes light colored. Inferior coverts of the wings white.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—This is the most remarkable species in the present collection, and of its generic relations I am by no means certain, though it appears to be most nearly allied to the group in which it is at present placed. In its colors, however, it is quite different from any other known species of this genus, and the scale-like feathers of the head and breast are quite peculiar.

This bird is dedicated to the lady of James Rush, M D., of Philadelphia, who, most ably seconding her distinguished husband in an enlightened encouragement of men devoted to the sciences and to the arts, has exerted an influence in the highest degree beneficial to their progress, and promotive of the true interests of society.

4. ÆGITHALUS FLAVIFRONS, nobis.

Form.—Bill straight, pointed, rather long, first quill spurious, third and fourth longest and very nearly equal, tail rather short, legs long, rather robust.

Dimensions.—Male, total length (of skin) 3¼ inches, wing 2¼, tail 1¼ inches.

Colors.—Forehead bright yellow, entire plumage of the upper parts olive green tinged with yellow, lightest on the rump, quills and tail dark brown, the feathers of both edged with yellowish green on their outer webs. Entire under parts pale yellow, tinged with green. Inferior wing coverts white, bill and feet light horn color.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—Of the same form and about the size of *Æ. Smithii*, but entirely different in color, nor does it apparently intimately resemble any known species.

5. SYNCOPTA TINCTA, nobis.

Form.—Bill rather long, first quill spurious, fourth and fifth longest and very nearly equal, tail moderate or rather short, legs long. Feathers of the back long and hair-like.

Dimensions.—Male, (of skin) total length 4 inches, wing 2¼, tail 1¾ inches.

Colors.—Head above, back and rump light cinereous, scapulars, wing coverts, and outer edges of quills (especially the secondaries) yellowish green. Quills and tail light hair brown. Throat, breast and sides light ashy, abdomen white, tibiæ ochre yellow, tinged with green. Edge of wings at the shoulders yellow, inferior coverts white. Bill dark, tarsi and toes light colored.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—The affinities of this genus are to the *Timaliinæ*. The present species is rather smaller than *Syncopta brevicaudata*, but there is no considerable specific similarity. It is in both the collections of Mr. Du Chaillu and Dr. MacDowell, obtained by the latter on St. Paul's river.

6. SYLVIA PRASINA, nobis. (Genus *Chloropeta?*)

Form.—Bill rather strong, upper mandible somewhat curved, wing rather long,

first quill spurious, fourth longest, tail moderate, legs and toes rather long and robust.

Dimensions.—Male, (of skin) total length 4½ inches, wing 2½, tail 1¾ inches.

Colors.—A line over and behind the eye pale yellowish white, another immediately below it (through and behind the eye) and head above uniform very dark olive green. Back, rump, wings and tail dark olive green tinged with yellow, especially on the rump and outer edges of the secondary quills. Entire under parts very pale yellowish white, with a tinge of greenish ashy. Edge of the wing at the shoulder pale yellow, axillaries and under coverts yellowish white, bill dark, feet lighter.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—Remarkable for its uniform dark green color and white superciliary line. Of the generic relations of this bird I am not confident, but regard it as probably a *Chloropeta.*

7. BUTALIS INFUSCATUS, nobis.

Form.—Bill wide at base, rather short, wing long, first quill spurious, third longest, tail moderate, slightly emarginate.

Dimensions.—Total length (of skin) male, 4¾ inches, wing 3½, tail 2 inches.

Colors.—Entire plumage above fuscous, rather darker on the head, and paler on the edges of the feathers of the back. Beneath fuscous, the edges of the feathers paler and slightly tinged with pale rufous on the breast, abdomen and under tail coverts, and on the throat (the edges of the feathers) with white. Quills and tail dark fuscous. Bill and feet dark. Female similar to the male but paler.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—This bird appears to be allied to *Muscicapa Fraseri*, Strickland, but is much smaller, and is in other respects quite distinct.

8. BUTALIS EPULATUS, nobis.

Form.—Small, but very robust, bill moderate, wide at base, with several pairs of bristles, wing rather long, first quill spurious, third and fourth longest and very nearly equal, tail moderate

Dimensions—Male, total length (of skin) 3¾ inches, wing 2¼, tail 1½ inches.

Colors.—Throat and middle of abdomen white, breast and flanks light cinereous. Entire plumage above cinereous, lighter on the rump and darkest on the head, quills brownish black, secondaries edged on their outer webs with light ashy, tail uniform brownish black, bill and feet dark, under mandible white at its base, under wing coverts and axillary feathers white.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—A small but robust species apparently not nearly related to any other. Its general form is much as though it had been accustomed to good cheer on the banks of the river Moonda, or wherever else it may have found sufficient entertainment.

9. PYCNOSPHRYS MCCALLII, nobis. (Genus *Pycnosphrys*, Strickland in Jard.-Contr. 1849.)

Form.—Small, bill moderate, upper mandible curved, and with numerous pairs of rather strong bristles at base, which are nearly as long as the bill. Wing moderate, first quill spurious, fourth and fifth longest and very nearly equal, tail rather long, legs moderate or rather long. Feathers on the head above somewhat elongated and probably erectile, feathers of the back lengthened.

Dimensions.—Total length, sex unknown, (of skin) 4 inches, wing 1¾, tail 1¼ inches.

Colors.—Head above and tail fine rufous, every feather of the former with a central line of white, back, rump and wing coverts light cinereous, tinged with rufous on the rump and darkest on the wing coverts, upper tail coverts rufous. Throat and breast very pale reddish yellow, abdomen and under tail coverts white, underwing coverts pale reddish yellow (uniform with the throat). Bill and feet light colored.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—Another bird, the generic position of which is to us uncertain. After careful examination, however, it appears most properly belonging as we have placed it. This species is strongly characterized by the bright rufous of its head above and tail.

This bird is named in honor of Col. Geo. A. McCall, late Inspector General in the Army of the United States, in token of respect for his extensive and varied acquirements as a naturalist, and of personal friendship.

10. Drymoica Bairdii, nobis.

Form.—Bill rather long, wing short, rounded, first quill short, fifth longest, tail long, graduated, legs long, rather slender.

Dimensions.—Male, total length (of skin) 5¾ inches, wing 2½, tail 3 inches.

Colors.—Middle of the abdomen white, entire under parts with regular transverse narrow bands of dark brown, (nearly black) and white. Head above ashy brown, other upper parts dark brownish olive, coverts of the wings and some of the shorter secondaries tipped with white. Quills hair brown, lighter on the edges of both webs, tail hair brown, tipped with white, and a rather obscure subterminal band of dark brown. Under wing coverts, white. Bill and tarsi dark (nearly black, in skin). Female similar, but slightly smaller, white space on the middle of the abdomen larger, tarsi lighter colored.

Hab.—Moonda river, Western Africa. Discovered by Mr. P. B. Du Chaillu.

Obs.—This species differs in colors from any other known to me, and the transverse bands of the inferior surface of the body are, so far as I know, peculiar to the present bird only of this genus.

This remarkable bird is dedicated to Professor Spencer F. Baird, of the Smithsonian Institution, one of the most eminent American naturalists, as a remembrancer of our long continued and pleasant friendship.

11. Laniarius lepidus, nobis.

Form.—Bill rather long, wide at base, much compressed towards the end, which is hooked and conspicuously toothed, first quill nearly spurious, fifth longest, tail rather long, feathers of the rump long and soft. Tarsi rather long.

Dimensions.—Total length, male (of skin), 9 inches, wing 4¼, tail 4½ inches.

Colors.—A spot before the eye white, the feathers of which are narrowly tipped with black. Entire upper parts olive tinged with yellow, especially on the rump, superior coverts of the wings greenish brown, every feather and the exposed ends of the secondaries having a terminal spot of greenish yellow and on their inner webs with pale yellow. Entire under parts of the body ashy white, darker on the breast. Tibiæ, flanks and under tail coverts yellow, the former tinged with greenish. Tail yellowish olive tinged with yellow, and all the feathers, except the two in the middle, tipped with pale yellow. Under wing coverts yellow. Bill and tarsi dark.

Hab.—Liberia. Rev Wesley Johnson; St. Paul's river, Dr MacDowall; Moonda river, Mr. Du Chaillu.

Obs.—Though this singular species has long been in the possession of the Academy, I have not found it described. It appears to be somewhat similar to *Laniarius peli*, Bonap. (Consp. Av. p. 360), but not identical, so far as can be ascertained from the short description as cited. This bird can be easily recognized by the white spots in front of the eye, the feathers of which are erect and tipped with black, and by the yellow spots at the tips of the wing coverts and secondaries.

12 Criniger xanthogaster, nobis.

Form.—Bill rather long, slightly curved, wing with the first quill spurious, fourth longest, tail rather long. Feathers of the rump somewhat lengthened and soft.

Dimensions.—Total length (of skin), male, 7½ inches, wing 3¾, tail 3¼ inches.

Colors.—Entire upper parts yellowish olive, the yellow more distinct on the rump. Quills dark brown, edged on their outer webs with olive, and on their

inner webs with greenish yellow. Entire under parts light yellow, tinged with olive green on the breast and sides, throat slightly mixed with white, and the shafts of some of the feathers on the neck before white. Tail above dark olive, beneath greenish yellow. Bill and feet light colored.

Hab.—Moonda river, Western Africa. Discovered by M. P. B. Du Chaillu.

Obs.—Apparently a *Criniger*, Temminck, and almost exactly resembles in color *Criniger ictericus*, Strickland, of India, but is smaller, and otherwise different. The only specimens that I have ever seen are in the present collection.

13. TRICOPHORUS LEUCURUS, nobis.

Form.—Bill wide at base, wing with the first quill subspurious, fifth quill longest, tail moderate, with the feathers broad, tarsus and toes rather short. Feathers of the rump lengthened and soft.

Dimensions.—Total length (of skin), sex unknown, 7 inches, wing 4, tail 3 inches.

Colors.—Four middle feathers of the tail brownish black, other tail feathers, (four on each side) white, tinged with yellow on their outer webs and tipped with brown. Entire upper parts yellowish olive, darker on the head. Quills dark brown, edged with yellowish green on their outer webs and with pale ashy white on their inner webs. Entire under parts dark cinereous tinged with yellowish green, under coverts of the tail yellowish white. Bill and feet dark.

Hab.—St. Paul's river. Discovered by Robert MacDowall, M.D.

Obs.—This is another bird which I have found some difficulty in assigning to a genus. It can easily be recognised by its white tail feathers, as described above.

14. PHYLLOSTROPHUS LEUCOPLEURUS, nobis.

Form.—Bill moderate first quill short, fourth slightly longest, tail rather long, tarsi and feet rather long, feathers of the head above somewhat scale-like.

Dimensions.—Total length (of skin) sex unknown, 9¼ inches, wing 4¼, tail 4¼ inches.

Colors.—Entire upper parts brown, with a slight tinge of yellowish on the back and of ashy on the head. Quills brownish black edged with brown on their outer webs and with ashy white on their inner webs. Throat and breast ashy white tinged with brownish green on the breast, where many of the feathers have central stripes of ashy white. Sides (under the wing) with a large white space, abdomen and under coverts of the tail white, with a very pale tinge of yellow. Tail brown, four outer feathers (on each side) widely tipped with white. Bill and feet dark.

Hab.—Moonda river, Western Africa. Discovered by M. P. B. Du Chaillu.

Obs.—One specimen only of this fine species is in the collection. It is strongly characterised by the large white spaces on the sides, which are readily observed on raising the wing. This bird may be related to *Phyllastrephus capensis* or *P. senegalensis*, of both of which indifferent figures and descriptions have been given, but of which I have not seen specimens.

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*Notice of Remarkable Strata containing the remains of Infusoria and Polythalamia in the Tertiary Formation of Monterey, California.**

By WILLIAM P. BLAKE,

Geologist of the United States Pacific Railroad Survey in California.

When in San Francisco, in June, 1854, I received a fragment of a white, porous earth, resembling chalk; but which, from its lightness and general characters,

* This notice has been deferred in consequence of the expectation of receiving from California a full suite of specimens collected at the locality, which should have arrived by this time. The principal facts concerning the position and geology of the deposits are now presented, and will be followed by more important details regarding the chemical composition and organisms of the specimens after they have been received.

was considered to be infusorial.* A small piece, on being subjected to examination by the microscope, was found to contain innumerable discs and long cylindrical spiculæ and ring-like organic remains. A portion was then forwarded to Prof. J. W. Bailey, of West Point, who, in his letter of acknowledgement, thus remarks: "The specimen from Monterey is rich in marine diatoms; the sieve-like discs belong to the genus Cascinodiscus, but there are many other very beautiful forms present. It is singular that the deposit contains some species which have only recently been detected as living species in the Pacific. It has quite a modern look, and contains many species which could only have grown in shallow water."

I soon afterwards visited Monterey and examined the deposit. It is about two miles distant in a south-east direction from the centre of the town, and forms a portion of a hill which fronts the bay and rises on the east side of the stage-road to San Francisco. This hill is between 500 and 600 feet high, and it is separated from the bay by a broad, sandy plain, and a belt of sand-hills along the beach. Groves of oak trees are found around the base of the hill, but towards its top it is covered with a dense growth of chamisal,† through which the outcrop of the white earth can be seen as a white spot on the hill side from all parts of the town and the anchorage. On arriving at the locality, however, the white spot which appeared so limited when viewed from the town, is found to have a length of about one hundred feet, and a width of from 15 to 40. It is also seen to extend in all directions under the vegetation by which it is partly obscured. The glossy green leaves of the shrubs which grow up about its borders, contrasted strangely with the white, chalk-like earth, which seemed as little fitted for vegetation as a lime-heap. The weathering of the formation has loosened small blocks and fragments, which lie upon the surface and hide the stratification from view, so that it at first appears as a homogeneous mass of vast extent; but on breaking out some large blocks from a favorable exposure, the lines of stratification became evident, and on a closer inspection they were seen to be as numerous and thin as the leaves of a book.

This out-crop appears to be the principal stratum, and it is near the top of the hill; but lower down a succession of strata are found alternating with siliceous beds, which are peculiarly compact and very finely stratified. Some of these are excessively hard, and break with a conchoidal fracture like flint or semi-opal. The whole form a series of parallel strata which are not horizontal, but dip south of east, or nearly south-easterly, at an inclination of from twenty to thirty degrees. The following is the succession of the strata from the upper stratum downwards to the lowest point examined.

The thicknesses stated are approximations.

Section.

	Feet.	Inches.
1. White siliceous earth, light and charged with infusoria .	50	—
2. Compact and siliceous, probably bituminous, . . .	—	3
3. White and earthy, resembling 1, ...	1	—
4. Compact, siliceous, dark colored and bituminous, . .	—	6
5. White and earthy, like 1, ...	12	—
6. Compact, siliceous, dark colored and bituminous, . .	—	6
7. White and earthy, like 1, ...	2	—
8. Compact, flint-like, very hard and nearly white. In thin layers,	2	—
9. Thin layers of white earthy material, similar to No. 1; intercalated with thin sheets of compact and semi-opaline silica,	10	—
10. Compact and siliceous. Hard and drab-colored, . .	3	—
11. White and earthy, similar to No. 1. (The thickness of this stratum was not estimated; it extends downwards, under the chamisal, for a long distance.)	—	—

It will thus be seen that there is one bed of microscopic organisms 50 feet in

* This specimen was collected by A. S. Taylor, Esq., of Monterey, and forwarded to Dr. J. B. Trask, from whom I received it.

† A low green growth of dwarf oaks or other shrubs.

thickness, and this is believed to be much less than it in reality is. The underlying strata, which are similar in their appearance, are probably equally fossiliferous, but this has not been demonstrated by examination. Their thicknesses were respectively, 1, 12, 2 and 10 feet, which, added to the thickness of the upper stratum, make a total of seventy-five feet. This is exclusive of the compact siliceous strata, which are presumed to be also fossiliferous. These siliceous layers are very extraordinary, some of them being like semi-opal in density, and in the character of their fracture, the surfaces being curved and vitreous, and the edges sometimes as sharp as glass. Their color varies from white to drab, or fawn-color, and is sometimes pink; some specimens resemble ivory or horn in color and translucency. Silica appears to be the constituent, and it must have been deposited in an impalpable form. The mineral characters of some of these strata are like those of specimens of surf-worn boulders that I picked up on the beach at San Pedro. These consist of silica charged with bitumen, and when broken present a conchoidal fracture and a resinous appearance. It is expected that these siliceous specimens will not only be interesting chemically, but that they will furnish beautiful objects for the microscope.

On the top of this formation there is a rudely stratified or assorted mass of boulders and gravel, like the accumulation along a beach. It is, in fact, a layer of beach-shingle, and it includes, among pebbles of granite and other rocks, water-worn masses of the compact siliceous rock, probably derived from the subjacent beds. One of these siliceous masses that was dark colored and probably bituminous, was found to be perforated by boring testacea. This was an unexpected and interesting discovery; for, here were masses of rocks of tertiary age that had been exposed and perforated by marine shells before being broken off, rounded and worn by the surf among other and harder rocks, and thrown on a beach by the retiring waters. The beach still remains, and rests exposed on the very summit of the hill, covering the edges of the strata—a remnant of a former shore now five hundred feet above the ocean.

This interesting formation, teeming with the skeletons of microscopic organisms appears to overlie and to be conformable with the tertiary strata that underlie a part of the town of Monterey and extend to and beyond the Mission of San Carlos. These strata rest upon a porphyritic granite, which forms the projection of the coast called Point Pinos, and is the bulwark of the bay.

Several quarries have been opened in the sedimentary formation near the town, and it is seen to consist of regular strata of light-colored argillaceous and arenaceous material; the particles being very fine and firmly impacted, so that, in some places, the strata break with smooth, curved surfaces, and have a semi-vitreous lustre. A large quantity of stone has been removed from these quarries and used in the construction of the buildings and walls of the town. The large Court House built by Walter Colton, and the church erected in 1794, are constructed of this stone, and the sharp edges and angles which are retained by the blocks in the walls of the latter show that the material has great durability and resists decomposition exceedingly well.

When the blocks are freshly broken out from the quarry they are easily hewn into shape by an axe; being extremely light and free from coarse sand or gravel. They harden slightly on exposure, but may be cut away with a knife. The color is a light buff or yellow, of various shades, passing into fawn color and drab; some of the beds are quite dark, being greenish black, or a dark olive brown. The prevailing color is, however, a light drab or yellow, very similar to the color of bath brick or lithographic stone. It is not unlike the former in density, being porous, and, when dry, it absorbs water with rapidity; in this respect and in density, it also resembles biscuit-ware, or the material of the porous cells of Grove's batteries.

These strata are fossiliferous, and many of the compact layers when split up into slabs parallel with the fine lines of stratification are found to be covered with impressions of small bivalve shells, lying thickly together, sometimes one within the other, as if they had fallen upon the bottom of a quiet sea. The most abundant shell is a small *Tellina*, which Mr. T. A. Conrad has described for me and named *T. congesta*. It is also found in similar strata at San Carlos,

and is there associated with *Lutraria Traskii*, Conrad, also a new species. Impressions of very small crabs have been found in this rock, and I have also seen what appeared to be the marks of fucoides on the surfaces of the layers.

A stratum of the Monterey formation similar in texture to the stone which is used for building, but different in color, also contains casts of *Tellina congesta* in great numbers. The color of this rock is a dark olive green or brown, but when it has been weathered the surface is white. When it is dry it is very light and adheres to the tongue, being very absorbent. Though soft and easily cut with a knife it is very tough, and gives a ringing sound when struck by a hammer, like a well baked tile.

In addition to the *Tellina* and other fossil shells which this rock contains, it is charged with innumerable and beautiful Polythalamia, (Foraminifera, D'Orbigny,) lying in thin layers through the mass and becoming visible in white lines on the edges of the slabs. They may be seen with the naked eye, but the assistance of the microscope is required to trace the forms of those that happen to be exposed. They are very white and perfectly preserved, and are exceedingly beautiful objects for the microscope. It is, however, to be regretted that the material in which they are preserved is so indurated and resisting that it is impossible to get them out for study. Every cross fracture of the rock presents innumerable sections, and occasionally the full form of a shell is visible on the surface.

The rock has another interesting peculiarity, which must be mentioned—it is bituminous, and gives off an empyreumatic odor when it is heated before the blowpipe flame. The specimens which I have are perforated by *Petricola cylindracea* and other boring shells.

The upper stratum of the formation at the quarries, which is overlaid by the beach shingle before mentioned, is worn smooth and uneven, as if it had been subjected to the action of the surf. It has been perforated by *Pholadidæ*, and their cells still remain. They are large and numerous, but no shell could be found in them. They are filled up with fine sea-sand, which indicate that the shells must have been removed before the surface emerged from the tide. The cells are in all respects similar to those now being formed and occupied in the rocks of the beach.

This locality is now at an elevation of about sixty feet above the beach and one quarter of a mile from it. It presents convincing evidence of the comparatively recent elevation of the coast.

The connection between the strata of siliceous infusoria and the strata containing the Polythalamia has not been traced, but it is probable that the two deposits are conformable, and parts of one great series. If this is so, we may conclude that the intervening strata are also charged with fossils. The formation, so far as already known, is a wonderful record of life, and a rich mine of results for the geologist and palæontologist.

Characteristics of some New Species of Mammalia, collected by the U. S. and Mexican Boundary Survey, Major W. H. Emory, U. S. A. Commissioner.

By SPENCER F. BAIRD.*

PART I.

SCIURUS LIMITIS, Baird.—Size less than that of *S. migratorius*. Upper molars four. Fur very short, compact and close pressed. Ears long, coated with very short hairs. Feet small; soles naked, and dark brown.

Color. Above, mixed cinnamon and black. Under parts of body and tail, cinnamon. Tail above and on the sides like the back, with three annulations of black. Head and body 10 inches. Tail mutilated. Hind foot, from heel,

* Full descriptions of these species will shortly appear in the official reports of the Survey.

1 8-12ths inches. Skull 2 3-12ths inches. Collected by J. H. Clark, on Devil's river, Texas.

SCIURUS CASTANOTUS, Baird.—Size that of *S. cinereus*, or larger. Five permanent upper molars. Tail about as long as the body, not bushy. Ears clothed with rather short hairs, not tufted. Soles naked.

Color. Back deep chesnut brown. Sides and rest of upper parts mixed ash, gray and lead color. Eyelids, upper surface of feet and whole of under parts white. Ears and sides of the head ash-gray. Tail white beneath, and all round the margins and tip. The hairs on the upper surface of the tail are black at the base, then white, then black, with white tips—the black predominating; in one specimen these hairs are entirely black, except at the tip. Head and body 12 inches; tail vertebræ 11 inches; to end of hairs 12½ inches. Hind feet from heel 2 7-12ths inches. Length of skull 2 4½-12ths inches.

This species differs from *S. aberti* in the absence of tufts to the ear, greater extent of chestnut brown on the back, clear white and black of the tail, with few annulations, &c.

Collected on the Mimbres, by J. H. Clark.

TAMIAS DORSALIS, Baird.—About the size of *T. lysteri*. Sides of the head with the stripes of *Tamias*, but more strongly defined than usual. Tail vertebræ not quite half the length of the body; the caudal hairs unusually long, black and chestnut color, largely tipped with white. Body above hoary, mixed with rusty and brown; beneath dull white. Sides and buttocks dull rusty. A single distinct dorsal dark stripe, the others obsolete, except the exterior one on either side, which is rather more evident. Body and head 5½ inches. Tail vertebræ 2 inches; to end of hairs 3 5-12ths inches. Hind feet from heel 1 3-12ths inches.

Collected on the Mimbres by J. H. Clark.

SPERMOPHILUS SPILOSOMA, Bennet. Erroneously considered by Audubon and Bachman to be the young of *S. mexicanus*.

Collected at El Paso by J. H. Clark.

SPERMOPHILUS COUCHII, Baird.—General character sciurine, like *S. beecheyi* and *douglassii*. Color entirely and everywhere black. Thumb with a broad blunt nail. Soles of feet naked. Tail about two-thirds the length of body, with long coarse hairs. Head and body 10 inches. Tail to end of vertebræ 5½ inches; of hairs 6½ inches.

Collected in Santa Caterina, Mexico, by Lieut. Couch, and at Victoria by Dr. Berlandiere.

PEROGNATUS FLAVUS, Baird.—Much smaller than the common house mouse, (*Mus musculus.*) Tail nearly equal to or less than the body; scarcely differing in color above and below. Hind feet short.

Color.—Above yellowish buff, with dusky tips to some of the hairs; paler and clearer on the sides. Beneath snowy white to the roots of the hairs. Hairs on the back plumbeous only on their basal half. Head and body 2 2-12ths inches. Tail to end of vertebræ 2 inches. Hind foot from heel 7½ inches.

Collected at El Paso by J. H. Clark.

GEOMYS CLARKII, Baird.—Upper incisors with a single deep groove on the median line of the anterior face; the portions on either side similar. Fore feet nearly equal to or a little shorter than the hinder. Second claw of the hand reaching as far as the fourth. Cheek pouches small. Fur soft and full

Color. Above uniform yellowish brown, the hairs with dusky tips. Beneath paler, with strong tinge of gray. Cheek pouches without blotches, and similar to the adjacent regions. Head and body 6 inches. Tail to end of vertebræ 2½ inches, the portion covered with very short hairs 2 2-12 inches. Hind foot, from heel, 1 3½-12 inches; middle claw 7 lines.

Collected at Presidio del Norte, on the Rio Grande, by J. H. Clark.

THOMOMYS UMBRINUS. *Geomys umbrinus*, Rich. Specimens, most probably of this species, were collected by Mr. Clark at El Paso.

Sigmodon berlandieri, Baird. Rather larger than *S. hispidus*. Claws weaker. Tail equal to or longer than the body.

Color. Above grayish yellow-brown, lined with black. No trace of ferruginous.

Collected between San Antonio and El Paso, by Mr. Clark, and in Northern Mexico, by Lt. Couch.

Neotoma mexicana, Baird. Ears very large. Feet small. Tail three fourths (?) the length of the body, covered with short stiff hair, so as to conceal the annuli. Fur long and very soft.

Color. Above light yellowish brown, lined with dark brown; pale fulvous on the sides. Feet and under surface of the body, white. Body and head 8 inches. Tail to end of vertebræ 5 inches, of hairs 5 3-12ths inches. Hind foot 1 1-12th inches. Collected near Chihuahua, by John Potts, Esq.

Neotoma micropus, Baird. About the size of *N. floridana*. Tail scarcely two-thirds the length of the body. Sparsely coated with hairs. Skull much broader and feet shorter than in *N. floridana*.

Color.—Above grayish slate; feet and under parts white. Head and body 8 4-12ths inches. Hind feet 1 4½-12 inches.

Collected at Charco Escondido and Santa Rosalio, Mexico, by Lieut. Couch.

Characteristics of some New Species of North American Mammalia, collected chiefly in connection with the U. S. Surveys of a Railroad Route to the Pacific.

By Spencer F. Baird.*

PART I.

Lepus Washingtonii, Baird.—Size about that of *L. sylvaticus*, or a little larger. Fur very soft and full on the body and under surface of feet. Tail very short. Ears shorter than the head. Hind foot, measured from the heel, longer than the head almost by the length of the claws.

Color.—Back, sides and throat reddish brown, the former with many glossy black hairs. Tail lead-colored above; rusty white beneath. Abdomen pure white. Ears black on the posterior margin and tip of their inner (convex) surface, the remainder of which is pale reddish brown, except on the exterior band. No change to white in winter. Head and body 18½ inches. Tail vertebræ 8 lines. Ears 3 3-12ths inches. Hind foot 4½ inches.

Collected at Puget Sound and Shoalwater Bay by Dr. Geo. Suckley, U. S. A., and Dr. J. G. Cooper. Survey of Northern Route, Gov. I. I. Stevens.

Lepus trowbridgii, Baird.—But little larger than *Lepus artemisiæ*. Head small; ears about equal to it in length, broad and ovate. Tail very small. Hind feet very short, densely padded, and about the length of the head.

Color.—Above yellowish brown and dark brown mixed; beneath grayish lead color. The sides differ from the back only in being a little paler. Back of neck pale rusty. Ears grayish and black on the external band, ashy gray elsewhere; with but slight indication of a darker margin or tip. Head and body 13 inches. Tail to end of vertebræ 5 lines. Ears 2 4-12ths inches. Hind foot, from heel, 2 8-12ths inches.

Hab.—Coast of California, from Monterey to Bodega. Collected by Lt. W. P. Trowbridge, U. S. A. Lt. A. W. Whipple, U. S. A.

Sciurus suckleyi, Baird.—Larger than *S. hudsonius*. Tail much shorter than the body, very flat. Ears tufted. Under surface of the feet densely clothed with hairs to the bases of the toes. Fur full and soft.

Color.—Above mixed chestnut brown and black; beneath pale brownish rusty; the hairs on the belly obscurely annulated with black. A dusky line along the flanks. Tail black at the extremity; margined throughout with rusty white; the

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* Full descriptions of these species will shortly appear in the official reports of the Railroad Surveys.

hairs of the tail annulated except at the tip with chestnut and black, like the back. Head and body 9 inches. Tail vertebræ 4½ inches. To tip of hairs 6 inches.

Collected by Dr. Suckley at Steilacoom, Puget Sound. Gov. I. I. Stevens.

TAMIAS COOPERI, Baird.—Size rather above that of *T. lysteri*. Tail vertebræ little more than half the length of the body. Ears large.

Color.—Anterior portion of the body above and sides grizzled gray and brownish ash, somewhat as in the Norway rat, (*Mus decumanus*) with a slight dash of rusty on the middle of the sides. Three distinct dorsal stripes of glossy dark brown with two others (one on either side) less strongly marked. The intervals between these stripes light grayish. Under parts grayish white, the line of separation from the sides very distinct. Hairs of the tail dark at the roots, then rusty, then black, and tipped with grayish. Length of head and body 6 inches. Tail vertebræ 3 4-12ths inches; to tip of hairs 4 inches.

Collected on the eastern side of the Cascade Mountains, Washington Territory, by Dr. J. G. Cooper. Gov. I. I. Stevens.

SPERMOPHILUS GUNNISONI, Baird.—Smaller than *S. ludovicianus*. Shape very similar. Ears very short. Thumb with a well developed claw. Tail very short, the vertebræ about one-ninth the length of the body.

Color.—Above light liver brown, mixed intimately with ash, light brown, and black. Beneath pale yellowish brown. Tail white along the edge and tip, with a sub-marginal band of black. The hairs at the extremity of the tail are entirely white, except a narrow central band of black. Head and body 11 inches. Tail vertebræ 1 3-12ths inches; to end of hairs 1 11-12ths inches. Hind foot, from heel 1 10-12ths inches.

Collected by Mr. Kreutzfeldt in the Cochitope Pass of Rocky Mountains. Lt. E. G. Beckwith.

SPERMOPHILUS GRAMMURUS, Say.—Specimens of this long lost species of Say were collected by Capt. Pope, in Western Texas.

SPERMOPHILUS BEECHEYI, Richardson.—Specimens of this species were collected in California by Dr. A. L. Heermann and by Lt. Trowbridge.

DIPODOMYS MONTANUS, Baird.—Tail stout, rather longer than the body, with a dusky stripe above and below, which extends to the end of the tail; the hairs springing from the extreme tip being, however, white. The white lateral stripes reach to the end of the tail. A decided crest on the upper surface of the tail towards its extremity. Body above yellowish brown, mixed with a good deal of dusky. Head and body 4½ inches. Tail vertebræ 5 3-12ths inches; to end of hairs 6 4-12ths inches.

Collected near Fort Massachusetts by Mr. Kreutzfeldt. Lt. E. G. Beckwith.

DIPODOMYS AGILIS, Gambel.*—Tail slender, much longer than the body, with a moderate crest of erect hairs towards the tip, on both the upper and under surfaces. The terminal fourth or fifth of the tail uniformly dusky; the dark subcaudal stripe extending to the end of the tail without interruption. Body above dusky, with only a slight tinge of yellowish brown on the sides. Head and body

* Dr. Gambel described a *Dipodomys* under this name from Los Angeles, but unfortunately omitted to mention any specific characters. Having received specimens from this same locality, clearly referrible to *D. phillipsii*, I was forced to consider Dr. Gambel's name as a synonym, his description applying as well to one as the other. I accordingly, in my notes, gave to the present species the name of *D. gambeli*. As Dr. Le Conte, in his masterly monograph of the genus, has defined the same species with much precision under Dr. Gambel's name, and is besides satisfied that it is really found at Los Angeles, with the other, I have finally concluded it best to adopt the name of *D. agilis*, which, however, is rather that of Le Conte than Gambel.

4 4-12ths inches. Tail to end of vertebræ 5 8-12ths inches; of hairs 6 2-12ths inches.

Collected by Lt. Trowbridge near San Diego, or Monterey.

Lt. A. W. Whipple.

GEOMYS BREVICEPS, Baird.—Upper incisors with a small longitudinal groove near the inner edge, and a much larger one bisecting the remaining space. Fore feet decidedly longer than the hinder, their second claw reaching only to the middle of the fourth. Cheek pouches ample. Skull short, broad. Forehead plane, outlines of zygomata seen from above, curved, widest apart at the junction of the malar and temporal bones.

Color.—Above dark chestnut brown, with dark clouding, caused by the deeper colored tips of the hairs. Beneath paler, mixed with grayish. Inside of pouches and surrounding region entirely yellowish white. Head and body 6¼ inches. Tail 2 2-12ths inches. Fore feet 1 1½-12ths inches. Middle claw 6 lines. Skull 1.55 inches in length; width .98, or 63½-100 of length.

Collected at Morehouse Parish, La., by James Fairie, Esq.

THOMOMYS BOTTÆ. *Oryctomys bottæ*, Eyd. and Gerv.—Specimens of this species were collected by Lt. Trowbridge and Mr. R. D. Cutts, at Monterey and San Francisco.

THOMOMYS RUFESCENS, Max.—Collected at Fort Pierre by Dr. J. Evans.

Gov. I. I. Stevens.

THOMOMYS LATICEPS, Baird.—Cheek pouches moderate, well lined with hairs. Tail nearly half the length of the body, thickened at the base. Feet very large and broad, claws of the hand small, slender; the middle one measured below is about two sevenths the length of the entire palm, including the claws; its finger about two eighths. Claw of the thumb extending to nearly the middle of the hand. Skull very broad; muzzle short.

Color.—Above yellowish red-brown; the hairs on the dorsal region largely and abruptly tipped with blackish. Sides nearly uniform. Beneath tipped with reddish. Pouches dull white, the dusky tint of the surrounding portions dipping into them. Tail greyish white, dusky above. Head and body 5 2-12ths inches. Tail 2½ inches, short haired portion 1 11-12ths inches. Fore foot 11½ lines; longest claw 4 lines. Skull 1 1-12th inches broad.

Collected at Humboldt Bay by Lieut. Trowbridge, U. S. A.

Lieut. A. W. Whipple.

NEOTOMA OCCIDENTALIS, Cooper, *Mss.*—*N. drummondii*, Aud. and Bach. Size of Norway rat. Fur coarse, harsh, not compact. Posterior third of soles furred. Tail densely coated with long hairs; the vertebræ rather longer than the body, exclusive of the head.

Color.—Above brownish plumbeous, with a slight mixture of yellowish brown. Under portion of body and tail, with the feet, bluish white. Upper surface of tail grayish plumbeous, the basal wool little lighter. Head and body 10 inches. Tail vertebræ 8 5-12ths inches.

Collected at Shoalwater Bay, W. T., by Dr. J. G. Cooper.

Gov. I. I. Stevens.

REITHRODON MONTANUS, Baird.—Size about half that of the common mouse. Ears smaller; densely furred, and almost buried in the long hairs of the body. Tail about as long as the body; quite densely coated with short hairs.

Color.—Above, brown and pale yellowish gray; beneath, dull whitish; flanks and outside of the ear, pale yellowish brown; no rufous any where. Tail whitish, dusky on the upper surface. Head and body 2 2-12ths inches. Tail 2 inches. Hind foot from heel 6 lines. Skull 9½ lines.

Collected in the vicinity of the Rocky Mountains, lat. 38°.

Lieut. E. G. Beckwith.

HESPEROMYS BOYLII, Baird.—Nearly as large as *H. gossypinus*. Ears very large, so scantily clothed with short hairs as to appear nearly naked. Tail con-

siderably longer than the body, with a brush of hair at the tip. Head broad, much pointed.

Color.—Above mixed brown and yellowish brown; paler on the sides; the outside of the foreleg colored to near the wrist. Feet and under parts white. Head and body 3 4-12ths inches. Tail to end of vertebræ 3 9½-12ths inches; of hairs 4½ inches. Hind foot 10 lines.

Collected on the middle fork of the American River, California, by Dr. C. C. Boyle. Lieut. R. S. Williamson.

HESPEROMYS AUSTERUS, Baird.—Smaller than *H. leucopus*. Tail as long as the body. Hind feet long. Color above brownish lead color, feet and under parts white. The dusky color of the sides extends on the outside of the forearm to the wrist. Head and body 2 11-12ths inches. Tail to end of vertebræ 2 10½-12ths inches; of hairs 3 inches. Hind foot from heel 9½ lines.

Collected at Fort Steilacoom, Puget Sound, by Dr. Geo. Suckley, U. S. A., and by Dr. Cooper on the Spokan Plains. Gov. I. I. Stevens.

The Committee on Mr. Durand's paper, entitled, "Plantæ Prattenianæ Californicæ," reported in favor of publication in the Journal of the Academy.

On leave granted, Mr. Vaux presented for publication in the Proceedings, a paper by Mr. William R. Blake, Geologist of the U. S. Pacific R. R. Survey in California, entitled, "Notice of remarkable strata of the remains of Infusoria and Polythalamia, in the Tertiary formations of Monterey, California." Referred to Dr. Leidy, Mr. Isaac Lea, and Mr. Vaux.

On leave granted, Mr. Cassin presented for publication in the Proceedings, two papers by Prof. S. F. Baird, viz: "Characteristics of some new species of North American Mammalia, collected chiefly during the U. S. Surveys of a Pacific R. R. route to the Pacific, part 1;" and "Characteristics of some new species of North American Mammalia, collected by the U. S. and Mexican Boundary Survey, under Major Wm. H. Emory, U. S. A.;" both of which were referred to a Committee consisting of Mr. Cassin, Dr. Le Conte, and Col. Mc. Call.

Dr. Rand offered a resolution, which was adopted, appointing a Committee to receive the members of the American Medical Association, which convenes in this city on Tuesday, May 1st. The following were appointed the Committee: Dr. Rand, Mr. Cassin, Dr. Leidy, Dr. J. A. Meigs, Dr. Hallowell, and Dr. Le Conte.

On motion of Dr. Le Conte, the Curators were added to the committee.

Dr. Le Conte offered the following Preamble and Resolutions, which were unanimously adopted:—

Whereas, Mr. George Ord, President of the Academy of Natural Sciences of Philadelphia, is about to visit Europe, and has most kindly offered his valuable services to the Society:—

Resolved, That the Academy views with pleasure the opportunity thus afforded of enlarging its friendly relations with similar European Institutions.

Resolved, That the President of the Academy be requested to invite the attention of individuals and Societies, devoted to scientific pursuits, with which he may communicate, to the benefits which would result to

Science from a more extended intercourse with the Scientific Societies of this country.

Resolved, That the cordial wishes of the Academy are hereby tendered to Mr. Ord, for a prosperous voyage, a pleasant visit, and a safe return.

Resolved, That a copy of these Resolutions, certified by the officers of the present meeting, be addressed to the President of the Academy.

ELECTION.

Henry Hartshorne, M. D., of Philadelphia, was elected a *Member* of the Academy.

[Notices of election of the following as Members and Correspondents were omitted at the proper dates:—

June 27th, 1854.—J. Edwards Taggart, and Mr. M. Messchert, of Philadelphia, as *Members;* and Dr. Wm. A. Hammond, U. S. A., and John W. Audubon, Esq., of New York, as *Correspondents.*

October 31st, 1854.—Dr. Cheston Morris, Dr. Diller Luther, and Dr. Theodore Hilgard, of Philadelphia, as *Members;* and Dr. John C. Dalton, Jr., of New York, and Prof. B. L. C. Wailes, of Mississippi, as *Correspondents.*

November 28th, 1854.—Dr. Thomas M. Drysdale, of Philadelphia, as a *Member.*]

Musci Frondosi. Expo uerunt F. Dozy et J. H. Molkenboer. January 1854. From the Authors.

Erste Säcularfeier der kœnig. Gesellschaft der Wissen. zu Göttingen. 29 November, 1851. From the Society.

Ueber das Klima von München. Von Carl Kuhn. From the Author.

Tafeln zu dem Vorträge der polygraphische Apparat der K. K. Hof. und Staatsdrückerei zu Wien.

Anatomische Untersuchungen über das Auge vom Walfisch, Balæna Mysticetus und anderen Cetaceen. Von Prof. Mayer in Bonn. From the Author.

Ueber den Bau der Cutispapillen und die sogenannten Tastkörperchen R. Wagner's von A. Kölliker. From the Author.

DONATIONS TO MUSEUM

In January and February, 1855.

January 2d.

Portraits of Sir Joseph Banks and Dr. Samuel L. Mitchell, from the Peale Collection. Presented by Mr. Joseph Harrison, Jr.

January 9th.

A beautiful Mosaic Tablet, containing sixty varieties of the Marbles of the Pyrenees. Presented by Wm. S. Wilson, Esq.

Spinax acanthias, from Delaware Bay, and several crustaceans and ascidians from Dainsville, N. J. From Mr. Theo. Beasley.

Numerous specimens of Carbonate, Silicate, and Oxide of Zinc, with accompanying minerals; from the Lehigh Company's Mines near Bethlehem, Penn. From Mr. Thomas Fisher.

Carbonate of Iron and Specular Iron, from Antwerp, N. J.; and Idocrase, from Welles, Maine. From Wm. S. Vaux, Esq.

February 6th.

Large Crystal of Smoky Quartz, with double termination. From Dr. Leidy.

Human cranium, taken from beneath the great altar of Sacrifices in Mexico; with numerous Mexican Antiquities, consisting of fragments of pottery, images in clay, objects of obsidian, &c. From Dr. E. H. Barton, of New Orleans, through Dr. La Roche, of Philadelphia.

Unio pearlensis, Conrad, from ———. From Prof. W. H. D. Thomas, of Cincinnati.

February 20th.

Skeleton of Simia ———. Presented by Dr. Dock, of Harrisburg, Penn.

Several specimens of Fossil Fishes, from the Albert Mines, Nova Scotia. From Mr. Thomas W. Carritt.

Crex pratensis, from the vicinity of Salem, N. J. From Mr. Wm. Patterson.

DONATIONS TO LIBRARY

In January and February, 1855.

January 2d.

American Journal of Science and Arts, Jan., 1855. From the Editors.

Charleston Medical Journal and Review, Nov., 1854. From the Editors.

Geological Reconnoissance of Arkansas River. By Prof. Warder, of Cincinnati. From the Author.

Microscopical observations pertaining to Yellow Fever. By J. L. Riddel, M.D. From the Author.

Notes sur les Larides. Par Le Prince C. L. Bonaparte. From the Author.

January 16th.

Dr. Wilson presented the following on the usual condition:—
Journal of the Franklin Institute for Dec., 1854, and Jan., 1855.
The London Athenæum for Nov., 1854.
Annales des Sciences Naturelles. 4me. serie, tome 2, No. 2.
Revue et Magasin de Zoologie. 1854. No. 10.
Species general et iconographie des Coquilles vivantes. Par L. C. Kiener. 138 liv.
Malakozoologische Blätter für Nov. 1854.

January 23d.

The History of Barbadoes. By Sir Robert Schomburgk, Ph. D. 8vo. From Dr. Wm. H. Freeman.
Report and Charts of the Cruise of the U. S. Brig Dolphin. By Lieut. S. P. Lee, U. S. N. 8vo. and Atlas. From the U. S. National Observatory.
Proceedings of the American Philosophical Society, July to Dec., 1854. From the Society.
Virginia Medical and Surgical Journal for Jan., 1855. From the Editors.
Comptes Rendus, tome 37, Nos. 19—23. From Dr. Wilson.

February 6th.

Report on the Agriculture and Geology of Mississippi. By B. L. C. Wailes. 8vo. From the Author.
The History of British Guiana. By Henry G. Dalton, M.D. 2 vols. 8vo. From the Author.
The History of an Expedition against Fort Duquesne in 1755, under Major Gen. Edward Braddock. Edited by Winthrop Sergeant. 8vo. From the Pennsylvania Historical Society.
Report of the Sanitary Commission of New Orleans on the Epidemic Yellow Fever of 1853. 8vo. From Dr. E. H. Barton, of New Orleans.
The Elements of Botany. By M. Adrien de Jussieu. Translated by James H. Wilson. 8vo. From Mr. A. Brasier.
Proceedings of the Boston Society of Natural History, Vol. 5, pp. 81—96. From the Society.
Proceedings of the California Academy of Natural Sciences, Vol. 1, pp. 7—15. From the Society.
Journal of the Society of Arts (London) Nos. 106—110. From the Society.
Rectification of Mr. T. A. Conrad's "Synopsis of the Family of Naiades of North America," published in the Proceedings of the Academy of Natural Sciences of Philadelphia, Feb., 1853. By Isaac Lea. From the Author.
Charleston Medical Journal and Review, Jan., 1855. From the Editors.
New Orleans Medical and Surgical Journal for Jan., 1855. From the Editors.
The following were presented by Dr. Wilson on the usual condition:—
London Athenæum for December, 1854.
Lehrbuch der Geognosie von Dr. Carl Fried. Naumann. 2 band. 8vo.
Neue Untersuchungen über die Physicalische Geographie und die Geologie der Alpen von Adolph Schlagintweit und Hermann Schlagintweit. Royal 8vo. and Atlas folio.
Ueber den Bau und die Entwickelung des Brustbeins der Saurier. Von Dr. H. Rathke.
Beiträge zur Mykologie. Von George Fresenius, M. D. Heft 1, 2. 4to.
Der Fossile Gavial von Boll in Würtemburg. Von Dr. E. D'Alton and Dr. H. Burmeister. Folio.
Die Conchylien des norddeutschen Tertiärgebirges von Dr. Ernst Beyrich. Lief 1, 2, 3. 8vo.

February 13th.

Virginia Medical and Surgical Journal, Feb., 1855. From the Editors.
Biographical Notice of Dr. Charles Caldwell. By B. H. Coates, M.D. From the Author.

May 8th, 1855.

Vice President BRIDGES in the Chair.

Letters were read—

From the Rev. J. C. Adamson, D.D., dated Oxford, Chester Co., Penn., 16th April, 1855, acknowledging the receipt of his notice of election as a Correspondent.

From the Boston Society of Natural History, dated 17th March and 12th April, 1855, acknowledging the receipt of late numbers of the Proceedings and Journal.

From M. Prosper Farbé, President of the Natural History Society of Rheims, France, stating that he is at present on a tour through this country for the purpose of collecting objects of Natural History, and proposing exchanges.

Mr. Vaux, on behalf of the Publication Committee, announced the publication of Part 1, Vol. 8, new series, of the Journal of the Academy.

May 15th.

Vice President BRIDGES in the Chair.

Letters were read—

From the Royal Academy of Sciences of Bavaria, dated Munich, 20th Dec., 1854, acknowledging the receipt of the Proceedings, Vol. 6, Nos. 8—12, Vol. 7, Nos. 1 and 2, and of the Journal, Vol. 2, Part 2.

From the same, dated 20th February, 1855, requesting a second set of the Publications of the Academy for the Library of the Society, the first set being deposited in the public Library of Munich.

From the Entomological Society of Stettin, dated 3d Feb., 1855, acknowledging the receipt of the Proceedings of the Academy, Vol. 6, Nos. 8—12, Vol. 7, Nos. 1—2, and transmitting their own publications.

From the Royal Academy of Sciences of Vienna, dated 27th Dec., 1854, acknowledging the receipt of the Proceedings, Vol. 6, Nos. 8—12, Vol. 7, Nos. 1 and 2, and of the Journal, Part 4, Vol. 2, new series.

From the Natural History Society of Dantzic, dated 11th Dec., 1854, of the same tenor.

From Byron King, Esq., Attaché U. S. Legation at Paris, dated 20th April, 1855, transmitting Vols. 5 and 6 of the Annales des Mines.

From W. Humphreys, of Savannah, Georgia, dated 28th April, 1855, relative to a collection of Reptiles.

May 22d.

Vice President BRIDGES in the Chair.

Letters were read—

From the Geological Society of London, dated 4th May, 1855, requesting the transmission of certain missing numbers of the Proceedings of the Academy.

From the Linnean Society of London, dated 16th Nov., 1854, ac-

knowledging the receipt of the Proceedings of the Academy, Vol. 6, Nos. 1—6, and Journal, Part 3, Vol. 2, new series.

From M. Prosper Farbé, dated Philadelphia, 22d May, 1855, accompanying the donations acknowledged this evening.

Mr. Isaac Lea read a paper, intended for publication in the Proceedings, entitled "Description of a new Mollusk from the Red Sandstone near Pottsville, Penn.;" which was referred to Dr. Leidy, Dr. Wilson and Mr. Vaux.

Dr. Leidy stated that he had received from Dr. Nott the bones of the so-called fossil man, exhibited in New Orleans several years since. The skeleton was 18 feet in length. There were two molar teeth, each weighing two pounds, and the fragment of a canine. The bones are those of the Mastodon. Dr. Leidy described the mode in which the skeleton was made up.

Dr. Leidy also announced to the Society that the fine skeleton of the Narwhal, (Monodon monoceros) which had been presented by Dr. Kane in 1851, had been mounted, and was now in the Museum.

May 29th.

Vice President BRIDGES in the Chair.

The Committee to which was referred the following paper, by Mr. Isaac Lea, reported in favor of publication in the Proceedings:

Description of a new Mollusk from the Red Sandstone near Pottsville, Pa.

By ISAAC LEA.

A few weeks since Dr. Leidy had the kindness to place in my hands an interesting specimen, consisting of a cast of a bimusculose mollusk which that gentleman had found last summer at Tumbling Run dam, about a mile south-east of Pottsville.

The discovery of this small specimen in these Red Sandstones (Formation No. 11 of the Pennsylvania Survey, by Prof. Rogers) is of great importance, as it is believed to be the first mollusk which has been observed in these Red Sandstones, underlaying the conglomerate of the coal measures of Schuylkill County, known as the southern coal field of Pennsylvania, and consequently congeneric with the *Sauropus primævus*, Lea, and *Plumites*, Rogers.*

The extreme paucity of organic life yet observed in these Red Sandstones excites the more interest, as the fact of such deficiency of types renders the position of this formation in the series a matter of doubt in the minds of some geologists.

It is hoped that by patient research other mollusks may be discovered, and that, by the palæontology of this portion of the Palæozoic rocks, its true position may be determined.

The specimen is simply a cast of the exterior of the two valves, entirely flattened out. In its facies it approaches the *Cypricardia rhombea*, Phill., (Geology of Yorkshire, pl. 5, f. 10,) from the Mountain Limestone of Northumberland, England. It is, however, rather more quadrate, and is a much smaller shell. It has strong affinities to *Posidonia*, particularly in the striæ, and may possibly

* Mr. Hall, in the New York Reports, part 4, p. 292, describes a *Cypricardia* (*contracta*) from the "Conglomerate and Sandstone" under the great western coal measures, near Panama, Chatauque County. It is quite oblong, and of much greater breadth and of a larger size than the species described herein.

CYPRICARDIA LEIDYI. LEA.

T Sinclair's lith

belong to that genus which seems to exist first in the Upper Silurian, and to rise to the superior portion of the Jurassic Formation. It also resembles the *Microdon bellastriata*, Con., (Hamilton Group,) described in the New York Reports, part 4, page 196, Geology, by James Hall.

As the exterior form only is visible, the diagnosis must necessarily be very curt. It may be thus characterized until better specimens shall be obtained. I name it after Dr. Leidy, who first discovered it.

Cypricardia Leidyi.

(Plate IV. The lower figure is magnified ten diameters.)

Shell oblong, round before and truncate behind, very inequilateral, striate; dorsal and basal margin parallel; umbonial slope sharply carinate; anterior slope with an elevated line from the beak to the basal margin; striæ about twelve, very regular, and nearly equidistant.

Length 2-20ths, breadth nearly 4-20ths of an inch.

Observations.—This species is remarkable for its outline and striæ. The dorsal and basal margins being parallel, and the posterior margin perpendicularly truncate, the angle=90°. The striæ cover the whole surface of the exterior, and are bent at an angle of 90° at the umbonial slope. The shell is accompanied on the specimen with some obscure impressed linear marks of a plant.

The Report of the Corresponding Secretary for the last month was read and adopted.

Mr. Vaux, on behalf of the Publication Committee, presented the Report for 1854, which was adopted.

Dr. Rand offered the following resolution, which was unanimously adopted:

Resolved, That the privilege of admission to the Museum of the Academy, and of endorsing tickets of admission to the same on public days, be granted to Mrs. Margaret Harlan, widow of Dr. Richard Harlan, late a member of the Academy.

ELECTION.

C. A. Santos, of Rio Janeiro; C. Baptista d'Oleveira, Director of the Botanical Garden of Rio Janeiro; José Antonio G. y Garcia, of Lima, Peru; and R. Ogden Doremus, M.D., of New York, were elected *Correspondents*.

June 5th.

Vice President BRIDGES in the Chair.

Letters were read—

From the Society of Arts and Sciences of Batavia, dated June, 1854, transmitting the volumes of its publications announced this evening.

From the Royal Library of the University of Gottingen, dated Dec. 1, 1854, acknowledging the receipt of the Proceedings, Vol. 6, Nos. 8—12, and Vol. 7, No. 1.

From the Boston Society of Natural History, dated 22d May, 1855, acknowledging the receipt of the Proceedings, Vol. 7, No. 7, and of the Journal, new series, Vol. 3, No. 1.

From the Trustees of the New York State Library, dated 2d June, 1855, acknowledging the receipt of the Proceedings, Vol. 7, No. 8.

Dr. Hallowell read a letter from Mr. Charles J. Gilman, dated Brunswick, Maine, —— 1855, inclosing the following communication from Mr. James E. Powell, a hunter in that State:

"In regard to the moose, I speak of it only as I am acquainted with it in this State (Maine), other latitudes causing some slight variation in its habits.

When the snows have left the ground entirely bare, which, in the favorite haunts of the moose, happens about the middle of May, they leave their winter haunts and approach the marshes, ponds and rivers, where they come to search for their summer food, consisting of all the various aquatic plants which flourish in this region. Their favorite food, however, is the water lily and rush, in all their varieties, and at this season they crop them as soon as they appear, close to the bottom, frequently holding their heads under water a minute or eighty seconds, and often wading in water so deep that when they put their heads down under the surface, to obtain the small lily leaves or to dig up the root of the plant (which they often eat at this season), before the leaves are plentiful, only a portion of the back is visible. About this time the females go apart, seeking the most impenetrable thickets that border on or are near water, and there bring forth their young; those of three years old and upwards almost invariably producing two. Still I have occasionally, but very rarely, seen and known three at a birth. Those of two years old never produce more than one. They shed their coats of long, rough hair, too, at this period, and are soon covered with short, smooth, fine hair, of a dark brown color, which, however, soon becomes a jetty, glossy black on the sides and back and grey on the legs (with the exception of one variety of the animal, which is of a grey color, and which is now very scarce here.) As the season advances, the moose frequent the water still more, and remain in it longer at a time. In May, or early in June, they seldom stay in it more than half an hour at once, but in July and August they sometimes remain in the water several hours, and also frequent the waters very much during the night, especially in hot, dry, sultry weather, or thunder storms, which they seem particularly to delight in, swimming back and forth, apparently in a high state of enjoyment. During these visits to the water, the female, or cow, secretes her young with great care, to protect them from the ferocity of the old bulls that would destroy them. For this purpose they commonly select a very dense clump of large bushes, or a spruce or fir thicket, which, by its density, prevents the bull from reaching them, on account of his horns, which generally sprout in April. They grow rapidly, and are very tender and easily hurt at this time. By September the horns are out of the velvet, and have acquired hardness, and towards the close of this month the rutting season commences, and the moose leave the water for two or three weeks and resort to the mountains. At this period the bulls are frequently very fat (I have killed them with nearly three inches in thickness of fat on the rump), and are often very fierce and savage, sometimes even *attacking* the hunter, but in the course of a few weeks they become thin and poor, in consequence of their continual roaming and their many combats, the effects of jealousy. They also neglect food at this time. At this period the loud bellow of the bull, or the sonorous 'call' of the cow is frequently heard and distinguished by the watchful hunter at the distance of two or three miles, in the stillness of night. The bulls also make another noise, which, from its peculiar sound, the hunters call chopping; it is produced by forcibly bringing together and separating the jaws in a peculiar and singular manner, and (as its name implies) resembles the sound of an axe, used at a great distance. They also emit a variety of strange sounds and cries. When they return to the water they spend a great deal of time in it for a week or two, but afterwards they gradually shorten their visits, until the sharp frosts set in. Still, they occasionally come into it, till ice forms an inch

thick during the night. Then they leave and return to the mountains, where they select their fall and winter haunts, roaming about and subsisting on the bark of small trees, which they peel or gnaw off, and the twigs of the fir tree and other woods. When the deep snows fall, they select a spot well adapted to their wants, and commence to browse and peel more closely. This is called 'yarding,' and as the snow deepens and crusts form on its surface, they peel and break down bushes and browse closely, in preference to wallowing through the snow in search of choicer food. A 'moose yard' frequently occupies about one hundred acres, more or less, but the latter few weeks of the season is frequently spent on an area of ten acres, or less. The old males and females never 'yard' together, but sometimes young bulls and cows are found occupying the same 'yard.' Still they are seldom found in close company. Cows and their calves frequently yard together, the calves remaining with the mother one year. The oldest bulls invariably yard alone, choosing some lonely knoll or mountain peak, where they reside in utter solitude. Indeed, as age increases, the moose become more solitary in their habits, avoiding the common resorts of other moose, and frequenting some lone little pond or stream. The moose of two and three years old, also, often yard alone, but the males between the ages of three and ten years are very gregarious. I have known as many as nine in one yard. When hunted at this time (deep snow) they go off in Indian file, each moose stepping accurately in the footprints of its predecessor, so that any but an experienced hunter would scarcely suppose that more than one moose had passed, when perhaps six or seven had gone in reality. Still, when they are closely pursued, and the one that is first becomes tired, (in consequence of having to break the way through the snow,) that one turns out a very little, and (the rest having passed him) brings up the rear. So they change in rotation, the males showing the most chivalrous spirit in aiding the females or the weaker ones. Sometimes, too, they break their order of going in awkwardly passing a tree, when hard pressed, some going on each side, but instantly falling into line again when the obstacle is passed. At this season the 'spikehorn,' or two-year-old bull, is noted as affording the longest and most difficult chase, and the oldest bulls for making the most gallant fight. In fact, they often refuse to run at all.

A 'moose-yard' presents a strange sight to those not familiar with it, with its broken bushes and peeled trees; for sometimes, when the snow is very deep and difficult for them to get through, they break down and browse closely the tops of young fir trees five or six feet from the ground, and where they are two or three inches in diameter. They also reach up and peel and browse ten or twelve feet high above the ground, raising the fore legs and allowing the weight of the body to rest on the hind ones. Although so fond of browsing the fir, they never eat the bark of it, yet they seldom kill any other tree, as they generally peel only one side of those they use for food; they also break down the bushes in one direction, pulling them towards them; so that the direction the moose has taken is known to the hunter by this sign, when he first approaches a 'yard.' The young fir-trees are killed by the bulls rubbing their heads against them, instinct teaching them in that manner to apply the balsam of fir (which possesses great healing powers) to the sore and tender places caused by the loosening and falling off of the horns.

The favorite winter food of the moose is the twigs of the fir tree and the bark of the mountain ash, and of a species of dwarf maple, and the young twigs of the 'moosewood.'

During the summer the females are often seen accompanied by their two calves, but in the winter there is seldom more than one calf found with each cow. From this I infer that the young of the moose are subject to many dangers. The cow gives an abundance of milk, and the growth of the moose is very rapid for the first three years It possesses immense strength and is capable of enduring long continued exertion and very great fatigue. It consumes very little food in proportion to its size, and, during the winter, seldom drinks, quenching its thirst with snow. Yet it very often chooses its yarding place near

or on some little streamlet, perhaps on account of its favorite maple being most abundant in such places.

The age of the moose is not great. I have never known but one to attain the age of twenty years; in fact, it is a rare and uncommon thing to find one that has attained the age of fifteen years. It possesses a quick ear and very strong, keen scent, and differs from most other wild animals in regard to its desire to attack a person bearing a torch, or rather the torch itself. For instance, in hunting on a dark night, in a canoe, on the water, when in pursuit of deer, &c., a flambeau, or torch, or candle, can be used to great advantage, the animals being apparently bewildered or fascinated by the bright, steady light which approaches them so noiselessly and still; but the moose, as soon as he perceives it, approaches it, quickening his pace as he comes nearer, till (unless utterly disabled by the deadly rifle shot) he charges full upon it, destroying the canoe, and frequently injuring its occupant. However, with the extinction of the torch his fury ceases. The moose is easily tamed, and when domesticated, exhibits much sagacity, and, if well treated, a very affectionate disposition. I kept a young one (one year old) a short time, which manifested as much docility and affection as a pet lamb. But when *insulted* or injured they are very revengeful and unforgiving. In reference to which I will relate an anecdote.

The moose above alluded to was a great favorite with a young girl, who used to visit him several times a day, playing with him and giving him such delicacies as were most grateful to his epicurean palate (by the way, he acquired a strong predilection for boiled, mashed potatoes), and the moose always showed the greatest pleasure when she was present. But one day, in a frolicksome mood, she bound some gaily-colored ribbons in her hair, leaving the ends loose and fluttering, surmounting the whole by a tall and flaunting plume. Thus attired she slowly approached the moose, while we stood watching and wondering how he would recognize her. At length, gently and in perfect silence, she stood beside the moose, and he slowly and haughtily turned his head, surveying her strange appearance with the most ineffable contempt. At last, utterly unable to repress her mirth at the ridiculous scene, she gave way to a fit of loud joyous merriment. The wonted sound seemed to affect the moose, and he partially turned his head away, then took another survey of her strange appearance and his eyes suddenly lit up with a red, savage, fiery light, and he struck her forcibly with his fore foot, and, had it not been for instant assistance, would probably have killed her. He never afterwards would permit her to approach him, showing signs of discontent and anger if she came within ten or twelve rods of him, and if (when at liberty in the field) he ever saw her he would instantly rush to attack her. Two or three times, when escaping into the house, she had not time time to shut the door, and the revengeful beast followed her into the rooms, to the great detriment of the furniture. We have often heard of a bull in a crockery shop, but fancy a *moose* in a parlor. And if I was not present, no other person could eject him, but he would instantly come at my call and be obedient and submissive; and if at any time this strange creature fancied itself not sufficiently noticed or petted by me, it would utter most piteous cries until it attracted attention.

The animal in a wild state is very lithe and supple, turning itself about and bending its form as easily as an ordinary dog, frequently standing in the most singular postures. It also frequently crawls on its knees, to pass under logs, &c., and drinks, in very shoal water, in the same position.

I am afraid I have wearied you with my tediousness, but vouch for the facts above stated, every one of which I know from actual observation and experience."

June 12th.

Dr. BRIDGES, Vice President, in the Chair.

Letters were read—

From the Acad. C. L. C. Naturæ Curiosorum, dated Breslau, 2d

Nov., 1854, transmitting the publications of that Institution, announced this evening.

From the Imperial Academy of Sciences of Vienna, dated 18th Oct. and 30th Nov., 1854, also transmitting its publications.

From the Wurtemburg Natural History Society, dated Stuttgart, 23d March, 1855, transmitting their publications, and acknowledging the receipt of the Proceedings, Vol. 6, Nos. 8—12, Vol. 7, Nos. 1 and 2.

From Dr. Wm. P. Gibbons, dated San Francisco, California, transmitting a printed description and a figure of a crab, from the coast of California, supposed by him to be new, and desiring its republication in the Proceedings. Referred to the Committee on Proceedings.

Dr. Le Conte presented for publication in the Proceedings, the following papers:—1. "Notes on the Amaræ of the United States;" and 2. "Synopsis of the Hydrophilidæ of the United States." Referred to Mr. Guex, Dr. Zantzinger and Mr. Schafhirt.

Mr. Cassin presented for publication in the Proceedings, a paper, entitled "Descriptions of some of the new Marine Invertebrata from the Chinese and Japanese Seas. By Wm. Stimpson, Zoologist to the U. S. Surveying Expedition to the North Pacific, Japan Seas, &c.; Lieut. John Rodgers, Commander." Referred to Dr. Leidy, Dr. Bridges and Mr. Cassin.

Dr. Hallowell called the attention of the members to the fact noticed by Mr. S. Ashmead, that the Coluber eximius has the faculty of vibrating its tail, when irritated, so as to produce, by striking a solid body, a sound similar to that of the rattlesnake. The living specimen on the table this evening produced the sound so distinctly as to be heard by all the members present. Dr. Hallowell also stated that Mr. Ashmead had noticed a similar noise produced by the black snake, by vibrating its tail among dry leaves. Dr. Le Conte confirmed the latter observation of Mr. Ashmead.

Mr. Lea read a letter from Dr. Ruschenberger, dated U. S. Flag Ship Independence at sea, April 24, 1855, announcing that he had transmitted for the Museum a skeleton of the Guanaco, several crania, and various other objects of Natural History.

June 19th.

Vice President BRIDGES in the Chair.

Letters were read—

From the American Philosophical Society, dated June 15th, 1855, acknowledging the receipt of the last number of the Proceedings.

From Dr. H. W. Kennedy, dated Buenos Ayres, April 17th, 1855, accompanying donations to the Cabinet, announced this evening.

June 26th.

Vice President BRIDGES in the Chair.

The Committees to which were referred papers presented by Dr. Le Conte, 12th inst.; and by Mr. Stimpson, presented same date, reported in favor of publication in the Proceedings.

Notes on the AMARÆ *of the United States.*

By JOHN L. LE CONTE, M. D.

Although most of the Amaræ found in our country have already been made known, the labor of determining species from the scattered descriptions of various authors is very great. I have therefore thought that it might give some aid to the final arrangement of the synonymy of this genus, to bring together the diagnoses of those known to me by specimens, as a definite basis would thus be established for comparison of types of the species in other collections, not accessible to me; and even where the names and synonyms adopted by me would be found faulty, a method of eliminating the errors resulting from differences in style of descriptions would be avoided.

In the arrangement of the species, nothing can be better than the divisions proposed by Dr. Zimmermann, although they cannot be admitted as of generic value. The only alteration I have made is the suppression of Percosia as not sufficiently distinct from Celia. They are as follows:

1. Thorax ante basin latior.
   - a. Tibiæ posteriores sexus utriusque intus simplices (Liocnemis Zim.) Sp. 1.
   - b. Tibiæ intermediæ maris intus bidentatæ (Lirus Zim.) Sp. 2—11.
   - c. Tibiæ posticæ maris intus dense pilosæ (Bradytus Zim.) 12—16.

2. Thorax ante basin haud latior.
   - d. Tibiæ posticæ maris intus dense pilosæ (Amara Zim.)
     - α. Tibiæ anticæ calcare trifido terminatæ (Triæna Lec.) 17—20.
     - β. Tibiæ anticæ calcare simplice. Sp. 21—33.
   - e. Tibiæ posticæ maris intus haud vel vix pilosæ (Celia Zim.) 34—48.

a. *LIOCNEMIS* Zim.

1. A. a v i d a, oblonga, latiuscula, nigro-picea, thorace latitudine duplo breviore, postice modice angustato, lateribus rotundatis, fortius marginatis punctatis, ad basin summam subsinuatis, angulis posticis subrectis, basi tota confertim punctata, utrinque vage aut profunde foveata: elytris thorace haud latioribus striis profundis, subtiliter crenulatis, antennis palpis pedibusque rufis. Long. ·31—·38.

Zabrus avidus Say, J. Ac. 3, 148. *Pelor av.* Say. Tr. Am. Phil. Soc. 4, 428. *Amara confinis* Dej. Sp. Gen. 3, 510.

New York, Illinois, Lake Superior; abundant. The dilated joints of the anterior tarsi of the male are smaller than in any other of our native species. Dr. Zimmermann, probably not having seen the male of this species, places it (Silberm. Rev. Ent. 2, 229,) incorrectly in Bradytus; the posterior tibiæ are not pubescent internally.

b. *LIRUS* Zim.

2. A. l a c u s t r i s, elongata, supra æneo-picea, subtus rufo-picea, thorace latitudine vix sesqui breviore, postice modice angustato, lateribus rotundatis, postice sinuatis angulis posticis rectis prominulis, impressionibus basalibus profundis punctatis bistriatis, carina externa acuta, elytris parallelis humeris vix rotundatis, thorace haud latioribus, dorso planiusculis, striis crenulatis, ad apicem impunctatis: epipleuris pedibus antennisque rufis, mesopleuris obsolete punctatis. Long. ·45.

One female found on the north shore of Lake Superior, I formerly considered this as Curtonotus *convexiusculus* Steph. (Kirby, Fauna Bor. Am. 35), but on comparison with English specimens it proves entirely different. From that, as from our other species, it differs by its narrower form, longer elytra, less rounded, but more sinuate sides of the thorax, and more prominent posterior angles.

A. J a c o b i n a, elongata, piceo-nigra, thorace latitudine sesqui breviore, postice magis angustato, lateribus rotundatis postice sinuatis, angulis posticis rectis prominulis, ad apicem et basin punctato, impressionibus basalibus valde profundis, vix bistriatis, carina externa acuta; elytris thorace haud latioribus, fere

parallelis, humeris vix rotundatis, dorso planiusculis, striis profundis crenulatis postice lævibus; pedibus rufo-piceis, anterioribus antennisque paulo pallidioribus, postpectore parce punctato. Long. ·45.

One male found at San Diego, California. Narrower than the following species, and with the thorax more narrowed at the base, and more strongly sinuated on the sides. From the preceding, which it resembles in the form, it differs by the basal impressions of the thorax being deeper, and hardly bistriate, by the posterior angles being somewhat less prominent, by the elytra being less parallel, comparatively shorter and more obtusely rounded at the extremity.

4. A. laticollis, oblonga latiuscula, piceo-nigra, subænescens, thorace latitudine plus sesqui latiore postice angustato, lateribus valde rotundatis, ante basin sinuatis, angulis posticis rectis prominulis, ad apicem et basin parcius punctato, impressionibus basalibus profundis subbistriatis, carina externa acuta; elytris thorace haud latioribus, dorso planiusculis, striis profundis crenulatis postice lævibus; epipleuris antennis pedibusque rufis, postpectore punctato. Long. ·45—·55.

Curtonotus laticollis Lec. Ann. Lyc. Nat. Hist. New York, 4, 368.

? *Curtonotus convexiusculus* Kirby, Fauna Bor. Am. 35.

Found in Nebraska Territory, near the Rocky Mountains. Very similar to the European A. convexiuscula, but in comparison with that species, the thorax is more rounded on the sides, more narrowed behind, and more finely margined.

5. A. carinata, oblonga, latiuscula, piceo-nigra, subænescens, thorace latitudine plus sesqui latiore, postice angustato, lateribus rotundatis ad medium subexplanatis ad basin brevissime sinuatis, angulis posticis subprominulis, ad apicem et basin punctato, impressionibus basalibus profundis subbistriatis, carina externa acuta: elytris thorace haud latioribus, dorso planiusculis, striis profundis subtiliter crenulatis postice lævibus; epipleuris antennis pedibusque rufis, postpectore punctato. Long. ·45.

LeConte, Ann. Lyc. New York, 4, 368.

Nebraska Territory, near the Rocky Mountains. In comparison with the preceding, which it closely resembles, the sides of the thorax are considerably less rounded, and less suddenly sinuate towards the base, and the basal angles although rectangular are less prominent; the sides are slightly flattened about the middle. The insect from Russian America referred by Mannerheim to this species is much smaller and otherwise different; it will be found below as A. infausta.

6. A. stupida, oblonga latiuscula nigro-picea, thorace latitudine fere duplo breviore postice magis angustato, lateribus rotundatis ad basin vix brevissime sinuatis, angulis posticis rectis vix prominulis, ad apicem et basin punctato, impressionibus basalibus minoribus haud striatis, carina externa latiore: elytris thorace vix latioribus dorso planiusculis, striis crenatis ad apicem lævibus, antennis pedibusque rufis, postpectore punctato. Long. ·5.

One female from Sacramento, California, given me by Mr. Rathvon. Resembles entirely in its form A. carinata, but the thorax is more narrowed at the base, the basal impressions are smaller and less deep, and the external carina is shorter and less elevated.

7. A. infausta, oblonga, nigro-picea, supra subænea, thorace latitudine sesqui breviore, postice paulo angustato, lateribus rotundatis ad basin brevissime subsinuatis, angulis posticis rectis haud prominulis, ad apicem et basin punctato, impressionibus basalibus valde profundis bistriatis, carina externa valde distincta acuta; elytris thorace haud latioribus convexiusculis, striis crenulatis, minus distincte versus apicem; antennis pedibusque rufis vel rufo-piceis, epipleuris vel rufis vel obscure-piceis, postpectore punctato. Long. ·4—·45.

Leirus rufimanus‖ Motschulsky, Mm. Acad. St. Petersb. 1842, 176.

'*Leirus carinatus* Lec.'† Mannerheim, Bull. Mosc. 1853, No. 31.

Russian America. Specimens have been kindly furnished me under the names above cited by Baron Chaudoir and Mr. Motschulsky. It is a narrower and smaller species than A. carinata, and the basal impressions, although very

deep, are more distinctly bistriate; the thorax is also less narrowed towards the base, and the elytra are less flattened on the disc. I have changed the name on account of Curtonotus r u f i m a n u s Kirby, Fauna Bor. Am. 35.

8. A. m e l a n o g a s t r i c a oblonga, nigro-picea, supra subænea, thorace latitudine sesqui breviore, postice paulo angustato, lateribus rotundatis ad basin brevissime subsinuatis, angulis posticis rectis haud prominulis, ad apicem et basin punctato, impressionibus basalibus minus profundis bistriatis, carina externa latiore; elytris thorace vix latioribus dorso minus convexis, striis crenulatis minus distincte versus apicem, antennis rufis, pedibus rufo-piceis, postpectore punctato. Long. ·44.

Dejean, Sp. Gen. 3, 519; Mannh. Bull. Mosc. 1843, 210; ibid. 1852.

Leirus melanogastricus Zimm. Gistl's Faunus, 1, 38; Silberm. Rev. Ent. 2, 229.

Russian America; a specimen sent by Mr. Motschulsky. This species resembles precisely in its form the preceding, but the basal impressions of the thorax are less deep and more distinctly bistriate, and the external carina is broader and less acutely elevated? the sides of the thorax are also somewhat less rounded.

9. A. E s c h s c h o l t z i i, oblonga nigro-picea, supra subænea, thorace latitudine plus sesqui breviore, postice angustato, lateribus magis rotundatis postice brevissime sinuatis, angulis postis rectis vix prominulis, ad apicem et basin punctato, impressionibus basalibus modice profundis bistriatis, carina externa latiore; elytris parallelis convexiusculis, striis crenulatis, minus distincte ad apicem; pedibus nigris, antennis piceis, articulis duobus primis rufis. Long. ·39.

Leirus Eschscholtzii Chaudoir, Bull. Mosc. 1837, 7, 36.

Sitkha; a specimen received from Baron Chaudoir. Very similar to the preceding, but with narrower, more parallel, and more convex elytra; the thorax is broader and more rounded on the sides, and the basal impressions are less distinctly bistriate; the antennæ are broken in my specimen, only two points remaining; these are rufous, but the others are described as being dark colored: the feet are entirely black, and the postpectus is punctured.

I have omitted the reference to Mannerheim's description, because he states that the sides of the thorax are rounded to the base, while in the specimen before me they are as much sinuated as in A. melanogastrica, and because I have received from Mr. Motschulsky, under the same name, a specimen in which the sides of the thorax are not at all sinuous, and the feet are rufous, as described by Mannerheim.

10. A. o b t u s a, oblonga, nigro-picea, supra vix ænescens, thorace latitudine plus sesqui breviore, postice angustato, lateribus rotundatis, postice obliquis haud sinuatis, angulis posticis obtusis, ad basin punctato, utrinque foveis duabus confluentibus notato, carina externa latiore; elytris thorace haud latioribus, convexis parallelis, striis crenulatis minis distincte ad apicem, pedibus rufis, antennis nigro-piceis articulo 1mo solo rufo. Long. ·36.

Amara Eschscholtzii† Mannerheim, Bull. Mosc. 1852, No. 13.

Russian America; Mr. Motschulsky. Very different from all the preceding, and somewhat approaching by its form some species of the next divisions.

11. A. e l o n g a t a, elongata, oblonga-ovato, gracilis, rufo-picea (immatura?), thorace latitudine non breviore, quadrato, antice posticeque modice angustato, lateribus rotundato, angulis posticis paulo obtusis, basi utrinque bistriato et punctato, carina externa latiore parum elevata; elytris thorace latioribus, tenuiter striatis, striis antice subtiliter punctatis. Long. ·4.

Curtonotus elongatus Lec. Agassiz' Lake Superior, 207, tab. 8, fig. 5.

One male found floating in Lake Superior, near the northern shore. This species differs very much in its form from all others known to me.

c. *BRADYTUS* Zim.

12. A. e x a r a t a, oblongo-ovalis, latiuscula nigro-picea, thorace latitudine fere duplo breviore, antice posticeque paulo angustato, lateribus rotundatis, an-

gulis posticis rectis, subprominulis, basi utrinque discrete bifoveato, foveis punctatis, elytris striis crenulatis ad apicem lævibus, antennis pedibusque obscure rufis. Long. ·33—·35.

Dej. Sp. Gen. 3, 509.

Bradytus exaratus Lec. Ann. Lyc. Nat. Hist. 4, 367.

Middle States, not rare. The reference by me of Curtonotus *brevilabris* Kirby, (Fauna Bor. Am. 35) to this species is undoubtedly incorrect.

13. A. furtiva, oblongo-ovalis, latiuscula, piceo-rufa (immatura?) thorace latitudine fere duplo breviore, antice paulo postice vero vix angustato, lateribus latius rotundatis, angulis posticis rectis subprominulis, basi utrinque discrete bifoveato, foveis punctatis, elytris striis crenulatis ad apicem lævibus, antennis pedibusque pallidioribus. Long. ·35.

Say, Trans. Am. Phil. Soc. 4, 429.

Bradytus furtivus Lec. Ann. Lyc. Nat. Hist. 4, 367.

Nebraska and Illinois. Allied to the preceding, but the thorax is hardly narrowed towards the base, and less rounded on the sides; the posterior angles, as in A. exarata, are rectangular, and project like a little tooth.

14. A. Oregona, oblongo-ovalis, æneo-nigra, thorace latitudine plus sesqui breviore, antice posticeque subangustato, lateribus magis rotundatis, angulis posticis obtusis, basi subtiliter punctata utrinque profunde bifoveata, elytris striis crenulatis ad apicem lævibus, pedibus antennisque obscure rufis. Long. ·35.

One specimen from Fort Vancouver, Oregon; Col. McCall. Resembles the next, but is smaller and has the sides of the thorax more rounded, so that the basal angles are rendered more obtuse.

15. A. libera, oblongo-ovalis nigro-picea, subænescens, thorace latitudine plus sesqui breviore, antice angustato, postice parum angustato, lateribus rotundatis, angulis posticis obtusis, basi subtiliter punctata utrinque profunde bifoveata, elytris striis crenulatis ad apicem lævibus, antennis palpisque rufis, pedibus obscurioribus. Long. ·38—·41.

Isoplenrus hyperboreus‡ Lec. Ann. Lyc. Nat. Hist. 4, 357.

Lake Superior, Illinois, Wisconsin, Nebraska. The reference of this insect to Amara hyperborea Dej. (Sp. Gen. 5, 800) is not warranted by the context; since that species is compared with A. *fodinæ*, it must be inferred that it belongs to the preceding division of the genus, in the neighborhood of A. obtusa. Curtonotus *latior* Kirby may possibly be identical with the present species, but the bifid tooth of the mentum is insisted on so strongly, as proving that it belongs to the division with A. *convexiuscula*, &c., that without reference to the type the synonym cannot be prudently adopted; under these circumstances I am compelled to propose a new specific name.

16. A. septentrionalis, elongata, oblongo-ovalis, nigro-picea, supra subænea, thorace latitudine sesqui breviore, antice angustato, postice parum angustato, angulis posticis subobtusis, lateribus latius rotundatis, basi parcius punctata utrinque profunde bifoveata, elytris striis subtilius punctatis ad apicem lævibus, antennis palpisque rufis, pedibus obscurioribus. Long. ·3.

Isoplenrus septentrionalis Lec. Ann. Lyc. Nat. Hist. 4, 358.

Lake Superior. Narrower than the preceding species, and much smaller, but resembling it in other characters.

d. *AMARA emend.* Zimm.

a. Tibiæ anticæ calcare trifido.

17. A. angustata, ovalis, supra ænea, thorace latitudine sesqui breviore, a basi antrorsum angustato, ad apicem emarginato, basi utrinque leviter bifoveato, foveis sæpe parce punctatis, externa obliqua sæpe obsoleta; elytris thorace haud latioribus a basi postice subangustatis, striis postice profundioribus, 7mo sæpe parum distincta, palpis pedibusque rufis, antennis fuscis, articulis 4 baseos rufis. Long. ·25—·28.

Say, Trans. Am. Phil. Soc. 2, 36, (Feronia); ibid. 4, 428.

Amara indistincta Hald. Proc. Acad. Nat. Sc. 1, 300.

Triana angustata et *indistincta* Lec. Ann. Lyc. Nat. Hist. 4, 365.

Middle and Southern States, Lake Superior and Nebraska; abundant. The female is wider than the male, but the elytra are not perceptibly dilated behind the base. Dr. Zimmermann (Silb. Rev. Ent. 2, 228) has misplaced this species among those having the spur of the anterior tibiæ simple.

18. A. pallipes, longius ovalis, supra ænea vel nigro-ænea, thorace latitudine fere sesqui breviore, a medio antrorsum angustato, ad apicem emarginato, basi utrinque leviter bifoveato, foveis subpunctatis, externa minore obliqua; elytris thorace paulo latioribus pone basin paulo dilatatis ad apicem minus acuminatis, striis postice haud profundioribus, palpis pedibusque rufis, antennis piceis articulis 3 baseos rufis. Long. 29.

Kirby, Fauna Bor. Am. 39.

Triana depressa Lec. Ann. Lyc. Nat. Hist. 4, 365.

Lake Superior and Northern New York. Sufficiently distinct from the preceding by the thorax being less gradually narrowed in front, by the elytra being slightly dilated, wider than the thorax and more obtusely rounded at the tip, with the striæ not deeper behind, and finally by the antennæ being darker, with only three joints pale.

The synonym belongs to a dark colored variety, with greenish reflexions.

19. A. scitula, ovalis, supra ænea, thorace latitudine haud sesqui breviore, a basi antrorsum angustato, ad apicem emarginato, basi utrinque leviter bifoveato foveis subpunctatis, externa minore, elytris thorace vix latioribus striis antice sæpe obsolete punctatis, postice profundioribus, femoribus nigro-piceis, tibiis tarsisque sæpe rufo-piceis, antennis piceis articulis 3 baseos rufis, parapleuris abdominisque lateribus punctatis. Long. ·27—·31.

Zimmermann, Gistl's Faunus, 1, 32: Silberman's Rev. Ent. 2, 223. Mannerheim, Bull. Mosc. 1843, 207.

San Francisco, California, not rare. This species varies somewhat in the punctuation of the striæ of the elytra, and the sides of the abdomen; sometimes the punctures are quite distinct, while at others they can hardly be seen: the parapleuræ are, however, always marked with a few punctures.

A single specimen (male) is much narrower than the others, having the proportions of A. angustata, and the thorax is less narrowed anteriorly; it possibly indicates a nearly allied species, but in the absence of other specimens, it would be unsafe to separate it.

20. A. longula, ovalis longior, supra ænea, thorace latitudine vix breviore antrorsum a basi angustato, ad apicem emarginato, basi utrinque leviter bifoveato, foveis subpunctatis, elytris thorace vix latioribus, striis postice profundioribus, antennis piceis, articulis tribus baseos, pedibusque ferrugineis; parapleuris metasterni abdominisque lateribus confertim punctatis. Long. ·3.

San Francisco, not rare. Narrower that A. scitula, and readily distinguished by the reddish feet; the punctures of the metasternum are not confined to the parapleuræ, and extend on to the middle segment.

β. Tibiæ anticæ calcare simplici.

* Antennæ rufæ, articulis basalibus haud carinatis.

21. A. insignis, nigro-cyanea, vel nigro-ænea, ovalis convexa, thorace antrorsum parum angustato, lateribus antice rotundatis, basi punctata utrinque vage bifoveata, elytris profunde striatis, thorace haud latioribus, antennis palpis tibiis tarsisque piceo-rufis, femoribus obscurioribus. Long. ·4—·43.

Dej. Sp. Gen. 5, 796. Mannh. Bull. Mosc. 1843, 208; ibid. 1853, No. 34.

San Jose and San Diego, California. I cannot imagine what the expression "interstitiis subtilissime punctulatis," applied to the elytra, in the description of the latter author quoted, can mean. The elytra of the female are dull from minute granulations, as in many species of Harpalus, while those of the male are shining; in neither sex are any punctures visible.

** Pedes rufi, antennarum articulis basalibus articulis basalibus haud carinatis.

22. A. basillaris, ovalis, brevior supra ænea vel nigra, thorace latitudine duplo breviore antrorsum angustato, lateribus rotundato, basi utrinque parce punctata. et leviter bifoveata, elytris striis fortiter punctatis, interstitiis subplanis pedibus rufis, antennis palpisque piceis, illis articulis 3 baseos rufis. Long. ·3—32.

Say, Trans. Am. Phil. Soc. 2, 35 (Feronia): ibid. 4, 428.

Amara lucidula Dej. Sp. Gen. 3, 477.

Middle and Southern States. The strongly punctured elytral striæ, rufous legs, and base of antennæ will distinguish this species. Nevertheless, it seems to vary in form; one specimen from Massachusetts, given me by Dr. Harris, is so much more corpulent than the others and so much more rounded on the sides of the thorax that I am tempted to consider it as a distinct species.

23. A. chalcea, ovalis, brevior, supra ænea, thorace latitudine duplo breviore antrorsum angustato, lateribus rotundato, basi utrinque parce punctata et leviter bifoveata, elytris striis haud punctatis, interstitiis planissimis, pedibus antennisque rufis, his extrorsum vix obscurioribus. Long. ·3.

Dej. Sp. Gen. 3, 476.

Middle and Southern States. Resembles in form the narrower specimens of the preceding. Dr. Zimmermann has incorrectly placed it in his ninth division of Celia, next to A. musculus (infra, No. 45).

*** Pedes nigri vel picei: antennæ basi rufæ, haud carinatæ.

24. A. impunctico llis, ovalis supra ænea vel nigro-ænea, thorace latitudine plus sesqui breviore antrorsum angustato, ad apicem profundius emarginato angulis anticis paulo prominulis lateribus oblique rotundatis, pone medium obsoletissime explanatis, postice vix obsoletissime foveato elytris striis postice parum profundioribus, antennis piceis, articulis 3 ferrugineis, femoribus nigris, tibiis tarsisque rufo-piceis. Long. ·25—35.

Say, Trans. Am. Phil. Soc. 4, 428. Kirby, Fauna Bor. Am. 39. Mannh. Bull. Mosc. 1853. No. 33.

Feronia impunctico llis Say, Trans. Am. Phil. Soc. 2, 36.

Amara trivialis? Dej. Sp. Gen. 3, 464.

Amara anthracina Hald. Proc. Acad. Nat. Sc. 1, 300.

Amara difficilis Lec. Ann. Lyc. Nat. Hist. 4, 362 (spec. decoloratum).

Middle and Western States to the Rocky Mountains; also in Russian America, according to Mannerheim: very closely resembles A. fallax, below described, but the third joint of the antennæ is not at all carinated: the flattening of the sides of the thorax is a deceptive character, and is sometimes hardly visible. From the following four species it differs by the thorax being more deeply emarginate at the apex, with the angles more prominent.

25. A. littoralis, ovalis, paulo longior, supra ænea, thorace latitudine fere duplo breviore, antrorsum angustato, lateribus rotundatis, angulis anticis haud prominulis, basi utrinque vix bifoveata, elytris striis impunctatis, postice haud profundioribus, pedibus totis nigris, antennis piceis articulis tribus baseos rufis. Long. ·3.

? Mannerheim, Bull. Mosc. 1853, 207.

Sitka. The thorax is shorter, more suddenly and less obliquely rounded on the sides rather than in the preceding species, which it otherwise resembles in form. Mannerheim's description does not at all agree with the typical specimen sent to me by Baron Chaudoir.

26. A. inepta, ovalis paulo longior, supra ænea, thorace latitudine fere duplo breviore, antrorsum angustato, lateribus rotundatis, postice subexplanatis, angulis anticis haud prominulis, basi utrinque leviter bifoveato, elytris striis postice haud profundioribus, pedibus rufo-piceis, antennis piceis, articulis tribus baseos rufis. Long. ·29.

A specimen collected in Oregon by the the late J. K. Townsend was given me by Mr. Wilcox as having been determined at the Berlin Museum for A.

littoralis. From the preceding species it differs by the sides of the thorax being distinctly flattened behind the middle, and by the feet being of a uniform reddish brown color; the anterior angles of the thorax are less deflexed, and basal foveæ are somewhat distinct.

27. A. crassispina, late ovalis, supra ænea, subtus cum pedibus rufo-picea (immatura?), thorace latitudine duplo breviore antrorsum magis angustato, lateribus oblique rotundatis, postice subexplanatis, angulis anticis haud prominulis, basi vix foveata, elytris striis impunctatis postice vix profundioribus, antennis piceis, articulis tribus baseos testaceis, tibiis anticis spina apicali dilatata. Long. 35.

One female found at Lake Superior. Differs from all the preceding by its broader form, and by the spur of the anterior tibiæ being broad and triangular.

28. A. conflata, ovalis, supra ænea, thorace latitudine fere duplo breviore, antrorsum modice angustato, lateribus rotundatis, angulis anticis haud prominulis, basi utrinque vix bifoveata, elytris striis postice paulo profundioribus, pedibus totis nigris, antennis piceis articulis tribus baseos rufis. Long. ·36.

San Francisco, California. Larger than A. impuncticollis, with the thorax less narrowed anteriorly, and less obliquely narrowed on the sides, and with the feet of a uniform black. In form exactly resembles the next, but the third joint of the antennæ is not perceptibly carinate at the base.

*** Pedes nigri; antennæ basi rufæ, articulo 3io carinato.

29. A. fallax, ovalis, supra ænea, thorace latitudine fere duplo breviore, antrorsum modice angustato, lateribus rotundatis, angulis anticis haud prominulis, basi utrinque vix bifoveata, elytris striis postice vix profundioribus, pedibus nigris, tibiis versus basin picescentibus, antennis articulis baseos tribus rufis, 3io ad basin carinato. Long. ·3—·36.

Le Conte, Ann. Lyc. Nat. Hist. 4, 362.

Lake Superior, New York, Alabama. From a specimen sent me by Dr. Harris, I learn that this is A. ovalis Sturm. Cat., mentioned but not described by Dr. Zimmermann in his essay on Amara.

30. A. subpunctata, ovalis, nigro-ænea, thorace latitudine fere duplo breviore, antrorsum modice angustato, lateribus rotundatis, angulis anticis haud prominulis, basi utrinque leviter bifoveata parce punctata, elytris striis postice haud profundioribus obsolete punctulatis, pedibus antennisque nigris, his articulis duobus baseos rufis, 2 et 3 fortiter carinatis. Long. ·31.

One specimen found at the Rocky Mountains. Differs from the next by the thorax being punctured at the base, with deeper basal foveæ, and by the striæ of the elytra being slightly punctured.

31. A. confusa, ovalis ænea vel nigro-ænea, thorace latitudine fere duplo breviore, antrorsum modice angustato, lateribus rotundatis, angulis anticis haud prominulis, basi utrinque vix obsolete bifoveata, elytris striis postice haud profundioribus, pedibus antennisque nigris, his articulis duobus baseos rufis, 2 et 3 fortiter carinatis. Long. ·32.

Lec. Ann. Lyc. Nat. Hist. 4, 361.

Abundant in Nebraska, near the Rocky Mountains.

32. A. polita, ovalis nitide ænea, vel nigro-ænea, thorace latitudine duplo breviore, ante medium antrorsum angustato, lateribus rotundatis ad basin utrinque foveis duabus parvis profundis notato, et sæpe obsolete parce punctato, elytris striis postice haud profundioribus, pedibus nigris, antennis piceis, articulis tribus baseos rufis, 2 et 3 fortiter carinatis. Long. ·25.

Lec. Ann. Lyc. Nat. Hist. 4, 364.

Nebraska and New Mexico; abundant.

33. A. convexa, ovalis, brevior, convexa, supra nigro-ænea, thorace latitudine duplo breviore, antrorsum modice angustato, lateribus rotundatis, angulis anticis haud prominulis, basi utrinque foveis duabus parvis notata, elytris tene-

iter striatis, striis postice haud profundioribus, pedibus nigris, antennis piceis, articulis tribus baseos rufis, 2 et 3 fortiter carinatis. Long. ·28.

Lec. Ann. Lyc. Nat. Hist. 4, 363.

Lake Superior, one female. Broader and more convex than any other species of this division, and approaching in its form the broader varieties of A. basillaris.

e. *CELIA* Zimm.

* Pedes antennæque nigræ, hæ basi sæpe rufæ.

34. A. erratica, ovalis longior supra ænea, thorace latitudine sesqui breviore antrorsum subangustato, lateribus rotundatis postice obsolete explanatis, angulis anticis haud prominulis, ad basin utrinque foveis duabus parvis notato, elytris tenuiter striatis, striis sæpe obsolete punctulatis, postice haud profundioribus, interstitiis planissimis, pedibus antennisque nigris, his articulis 1 vel 2 baseos rufis. Long. ·23—·25.

Sturm, Fauna, 6, 55; tab. 146.

Celia erratica Zimm. Gistl's Faunus, 1, 24: Silberm. Rev. Ent. 2, 213. Mannh. Bull. Mosc. 1853, No. 35 (cum synon. Europæa).

Amara punctulata Dej. Sp. Gen. 3, 472.

Lake Superior, Vermont, and, according to the authors above quoted, also found in Russian America; also in Kamschatkha and Northern Europe.

35. A. lævipennis, elliptico-ovalis, nigro-subænescens, supra sericeo-opaca, thorace latitudine plus sesqui breviore, antrorsum angustato, lateribus rotundatis, ad basin foveis duabus parvis (externa obsoleta) notato, elytris tenuiter striatis, striis sæpe punctulatis, postice haud profundioribus, pedibus antennisque nigris, his articulis duobus baseos obscure rufis. Long. ·32—·35.

Kirby, Fauna Bor. Am. 40.

Lake Superior, one pair; a female from Massachusetts, sent by Dr. Harris: the female from Lake Superior has impunctured striæ, but does not otherwise differ. Readily distinguished from the next by the longer thorax which is not flattened on the sides, and by the interstices of the elytra being entirely flat and even.

36. A. interstitialis, subovata, supra cupreo-ænea, viridis, cærulea vel nigra, sericeo-opaca, thorace latitudine duplo breviore, antrorsum angustato, lateribus rotundatis postice late subexplanatis, basi nonnunquam obsolete punctulata utrinque foveis parvis duabus (externa sæpe fere obsoleta) notata, elytris tenuiter striatis, striis nonnunquam obsolete punctulatis, interstitiis transversim vage et crebre impressis; pedibus antennisque nigris, his articulis duobus baseos obscure rufis. Long. ·33—·4.

Dej. Sp. Gen. 3, 472 (fide Zimmermann).

Celia interstitialis Zimm. Gistl's Faunus, 1, 24; Silberm. Rev. Ent. 2, 212.

? *Amara patruelis* Dej. Sp. Gen. 5, 793.

Amara inæqualis Kirby, Fauna Bor. Am. 39.

Amara splendida Hald. Proc. Acad. Nat. Sc. 1, 300.

Celia inæqualis et *splendida* Lec. Ann. Lyc. Nat. Hist. 4, 360.

Lake Superior, Massachusetts, Pennsylvania and Illinois. Should this be really Dejean's species, (and I place it as such on the authority of a specimen kindly communicated by Dr. Harris,) it is very remarkable that neither he nor any of the other authors quoted mention the dull sericeous appearance of the upper surface.

37. A. farcta, brevior, subovata, nigra (femina subopaca, mas nitidus) thorace latitudine duplo breviore, antrorsum subangustato, lateribus rotundatis haud explanatis, ad basin foveis duabus parvis utrinque notato, elytris tenuiter striatis, (interstitiis maris planissimis, feminæ parum convexis), antennis articulis duobus baseos obscure rufis. Long. ·32.

New Mexico, collected by the late R. W. Kern. Also closely related to the preceding, but the thorax is still shorter, less narrowed in front, with the ante-

rior angles more rounded, and the sides not at all flattened; the outer fovea of the base is not less impressed than the inner one.

** Antennæ totæ rufæ.

a. Thorax antrorsum angustatus lateribus haud deplanatus.

38. A. californica, ovalis supra nigro-ænea, thorace latitudine sesqui breviore, antrorsum angustato, lateribus rotundatis haud deplanatis, angulis anticis haud prominulis, basi utrinque obsolete bifoveata, elytris striis tenuibus postice haud profundioribus, antennis tibiis tarsisque piceo-rufis, femoribus nigro-piceis. Long. ·32—·38.

Dej. Sp. Gen. 3, 474. Mannerh. Bull. Mosc. 1843, 209.

Celia californica Zimm. loc. cit.

Found in every part of California; the large specimens were taken along the Gila river, and at Tucson, in Sonora. They do not differ appreciably, although so large as almost to indicate another species. Immature specimens occur with the feet and under surface of a uniform brownish red color.

b. Thorax lateribus deplanatus, antrorsum angustatus.

39. A. patricia, subovata nigra, thorace latitudine plus sesqui breviore, a medio antrorsum angustato, lateribus rotundatis postice deplanatis, basi punctata depressa, utrinque bifoveata, fovea externa maiore; elytris thorace paulo latioribus, striis tenuibus punctatis postice haud profundioribus, pedibus nigro- vel rufo-piceis, antennis palpisque obscure rufis. Long. ·38—·5.

Dej. Sp. Gen. 3, 502; Fr. Käfer Mark Brand. 92 (cum synom Europæa.)

Amara obesa Say, Trans. Am. Phil. Soc. 2, 37 (Feronia).

Percosia obesa Hald. Proc. Acad. Nat. Sc. 1, 297; Lec. Ann. Lyc. Nat. Hist. 4, 359.

Lake Superior, Middle States, and Nebraska; not rare. The sides of the thorax are reddish and translucent. The female is dull and the male shining.

40. A. diffinis, ovalis, nigra, thorace latitudine plus sesqui breviore, a medio antrorsum angustato, lateribus rotundatis postice deplanatis, basi confertim punctata, depressa utrinque bifoveata, fovea externa maiore, elytris thorace vix latioribus, striis profundis punctatis, interstitiis paulo convexis; pedibus rufo-piceis, antennis palpisque obscure rufis. Long. ·38.

Percosia diffinis Lec. Ann. Lyc. Nat. Hist. 4, 359.

Nebraska. Narrower and more oval than the preceding, with deeper elytral striæ. The female is hardly less shining than the male.

41. A. terrestris, brevius ovalis, piceo-ænea nitida, thorace latitudine duplo breviore, ante medium subangustato, lateribus rufo-piceis rotundatis postice deplanatis, basi utrinque bifoveata, foveis punctatis, elytris thorace vix latioribus, striis sæpe obsolete punctatis, interstitiis planissimis; antennis, palpis pedibusque rufo-testaceis.

Isopleurus terrestris Lec. Ann. Lyc. Nat. Hist. 4, 358.

Valley of the Platte River, Nebraska. In immature specimens the whole surface of the body is reddish brown. Closely related to the next species, but is broader in form and has deeper elytral striæ.

42. A. remote-striata, ovalis longior, supra obscure ænea, (femina subopaca,) thorace latitudine duplo breviore ante medium angustato, lateribus rotundatis postice deplanatis, angulis posticis subobtusis, basi utrinque bifoveata, foveis punctatis, elytris subtiliter striatis, striis obsolete punctulatis; antennis palpis pedibusque piceo-rufis, femoribus sæpe obscuris. Long. ·32.

Dej. Sp. Gen. 3, 473. Mannerh. Bull. Mosc. 1843, 208.

Celia remota Zimm. loc. cit.

Celia relucens Mannerh. Bull. Mosc. 1853, No. 37.

Russian America; two females sent to me by Baron Chaudoir, under the names above cited, but between which I can perceive no difference. A male sent by Mr. Motschulsky as C. relucens, has the thorax less transverse, with the posterior angles rectangular, and the elytra shining.

43. A. gibba, brevior, subovata, supra nigro-ænea, thorace latitudine duplo breviore, antrorsum subangustato lateribus oblique rotundatis, postice minus distincte explanatis, angulis posticis subobtusis, basi utrinque bifoveata, foveis punctatis, elytris tenuiter striatis; antennis palpis pedibusque rufis, femoribus obscuris. Long. ·3.

Lec. Agassiz' Lake Superior, 207.

Celia gibba Lec. Ann. Lyc. Nat. Hist. 4, 360.

Lake Superior; two males. Broader and more convex than the preceding, with the thorax more gradually narrowed anteriorly and less flattened on the sides, which are more obliquely rounded.

c. Thorax antrorsum subangustatus; elytra striis fortiter punctatis, stria scutellari libera.

44. A. rubrica, piceo-rufa, elliptica nitida, thorace latitudine haud sesqui breviore, antrorsum subangustato, lateribus rotundatis, angulis posticis apice rotundatis, basi utrinque bifoveata, foveis parvis punctatis, elytris subæneo-micantibus, striis fortiter punctatis. Long. ·27—·32.

Haldeman, Proc. Acad. Nat. Sc. 1, 301.

Middle and Southern States, not common; larger than A. musculus, with a longer thorax, and slightly rounded posterior angles.

45. A. subænea, supra piceo-ænea, elliptica nitida, thorace latitudine vix breviore, antrorsum subangustato, lateribus rotundatis, angulis anticis subprominulis, posticis rectis haud rotundatis, basi utrinque bifoveata, foveis parvis punctatis, elytris striis fortiter punctatis, antennis palpis pedibusque rufis. Long. ·27.

Acrodon subænea Lec. Agassiz' Lake Superior, 208.

Lake Superior; from the others of this group it differs by the thorax being more deeply emarginate at the apex, with more prominent anterior angles.

46. A. musculus, nigro-picea, æneecens, vel rufa, nitida, elliptica, thorace latitudine plus sesqui breviore antrorsum angustato, lateribus rotundatis, angulis posticis rectis, basi utrinque bifoveata, foveis parvis punctatis, elytris striis profundis vel fortiter vel subtilius punctatis, antennis palpis pedibusque rufis. Long. ·22.

Amara musculis Say, Trans. Am. Phil. Soc. 2, 35. Dej. Sp. Gen. 3, 447.

Acrodon musculus et *contempta* Lec. Ann. Lyc. Nat. Hist. 4, 366.

Middle, Southern and Western States, to the Rocky Mountains. Varies somewhat in the distinctness of the punctures of the striæ of the elytra, but the difference is not specific.

47. A. harpalina, oblongo-ovalis rufo-picea nitida, thorace convexiusculo, latitudine sesqui breviore, ante medium rotundatim angustato, angulis anticis haud prominulis, posticis rectis haud rotundatis, basi utrinque confertim punctata bifoveata, elytris striis punctatis, antennis palpis pedibusque pallidioribus; capite maiusculo. Long. ·28.

Two females from Santa Fe, New Mexico. Less elliptical than the others of this group, with the sides of the thorax parallel behind the middle and very slightly flattened.

d. Thorax subquadratus, antrorsum angustatus.

48. A. rectangula, oblongo-ovalis nigro-picea vix æneseens, thorace latitudine sesqui breviore, ante medium paulo angustato, ad apicem vix emarginato, lateribus late roturdatis, angulis posticis rectis haud rotundatis, basi punctata utrinque bifoveata, elytris striis fere impunctatis, postice haud profundioribus, antennis palpis pedibusque rufis. Long. ·35.

Oregon, Col. McCall, one male; a female found by me at San Francisco.

49. A. aurata, oblongo-ovalis, supra nitide æneo, thorace latitudine sesqui breviore, ante medium paulo angustata, apice vix emarginato, lateribus late rotundatis, angulis posticis vix rectis, subrotundatis, basi punctulata utrinque

leviter bifoveata, elytris tenuiter striatis, antennis palpis pedibusque rufis. Long. ·25—3.

Dej. Sp. Gen. 3, 475. Mannerh. Bull. Mosc. 1843, 209.

Celia aurata Zimm. loc. cit.

San Francisco and San Diego, California, not rare.

The following species are unknown to me, or from the want of detail in the characters given cannot be safely referred to any of those above described. The two first mentioned are common European species, said to occur on this continent.

A. spreta Dej. fide Zimmerman, Silberm. Rev. Ent. 2, 203.

A. vulgaris Latr. (Linné, Carabus), fide Kirby, Fauna Bor. Am. 38.

A. hyperborea Dej. Sp. Gen. 5, 800. Labrador; (belongs probably to Div. b.)

A. discors Kirby, Fauna Bor. Am. 40.

Curtonotus rufimanus Kirby, ibid. 35. Probably a variety of A. laticollis Lec., in which case the name will not have preference, as the description must be considered worthless, and moreover must be considered as erroneously separated from A. convexiuscula Kirby.

Curtonotus brevilabris Kirby, and C. latior Kirby ibid.

Isopleurus nitidus Kirby, ibid. 30, tab. 1, fig 6. Found in the Rocky Mountains; may be either A. septentrionalis (No. 16), or A. subænea (No. 45.) At all events the name cannot remain, there being already an A. nitida *Sturm* found in Europe.

Bradytus glacialis Mannerh. Bull. Mosc. 1853. Arctic western America.

Celia indistincta Mannerh. ibid. Unalaska; seems related to A. gibba Lec.

Celia amplicollis Mannerh. ibid.

The following European species have been mentioned, probably erroneously, by Dejean as having been found in the United States: A communis, familiaris, and similata.

Amara? grossa Say, Trans. Am. Phil. Soc. 4 430, does not belong to the genus, but is probably a Nothopus.

Feronia impunctata Say, quoted by Dejean, (Sp. Gen. 3, 469) as synonymous with A. familiaris, belongs to Pristodactyla. Dejean was misled by an incorrectly named specimen received from Say.

Synopsis of the HYDROPHILIDÆ *of the United States.*

By JOHN L. LE CONTE, M.D.

The species of this family seem to have been treated with undeserved neglect, and in fact there is in their general appearance a sameness, and in the parts of the body where specific characters are usually to be seen, a uniformity of structure which does indeed tend to render the study of them very monotonous: yet on comparing portions of the body not usually seen, the sternum and adjoining parts, differences will be found in many cases, which if not associated with the closest resemblance in form and manner of life would determine the formation of a large number of genera. Nevertheless the genera, as evidenced by external character, appear separated by characters of still greater magnitude, as may be seen from the following scheme of our native genera which is partly arranged from the excellent labors of Lacordaire (Genres des Coléoptéres, 1, 446 and sq.) I have merely replaced some of the characters by those given by Erichson, and have suppressed Volvulus and Tropisternus as being founded on insufficient characters, and inverted the order of some of the primary divisions.

I. Tarsi posteriores articulis 4 primis brevibus, æqualibus * Spercheus.

II. Tarsi posteriores articulis 4 primis brevibus, 1mo indistincto (HELOPHORIDES.)
Palpi maxillares articulo ultimo longiore: oculi integri.

Antennæ 9-articulatæ ; palpi omnes longiusculi	Helophorus.
Antennæ 7-articulatæ ; palpi labiales breves	Hydrochus.
Palpi maxillares articulo ultimo brevi subulato	Ochthebius.
Palpi maxillares longissimi	Hydræna.

Tarsi posteriores articulo 2ndo elongato, 1mo brevissimo :

III. Tarsi posteriores compressi ; metasternum postice spinosum	(Hydrophilidæ.)
Prosternum minutum, sulcatum	Hydrophilus.
Prosternum carinatum	Hydrocharis.
IV. Tarsi posteriores haud compressi ; metasternum simplex.	(Hydrobiidæ.)
(Oculi duo ; abdomen segmentis ventralibus quinque).	
Tibiæ et tarsi posteriores ciliati ; antennæ 8-articulatæ	Berosus.
Tarsi posteriores breviter ciliati ; trochanteres postici magni ; antennæ 8-articulatæ	Laccobius.
Tibiæ et tarsi simplices ; trochanteres postici mediocres.	
Palpi maxillares elongati articulo ult. breviore ; antennæ 9-articulatæ	Philhydrus.
Palpi maxillares art. ult. longiore : antennæ 9- (raro 8-) articulatæ	Hydrobius.
V. Tarsi posteriores articulo 1mo elongato	(Sphæridiidæ.)
Antennæ 9-articulatæ ; metasternum antice productum	Cyclonotum.
Antennæ 8-articulatæ ;	
mesosternum angustum ; prosternum carinatum	Cercyon.
mesosternum pentagonum, dilatatum	
Prothorax marginatus	Megalosternum.
Prothorax immarginatus	Cryptopleurum.

Helophorus Fabr.

(* Elytra stria scutellaria nulla).

1. H. oblongus, nigro-piceus, oblongus, capite thoraceque nitidis parce punctulatis, hoc latitudine sesqui breviore, lateribus late rotundatis, angulis posticis obtusis, 5-sulcato, sulcis intermediis paulo undulatis, ad latera parce granulato, elytris fusco-testaceis, profunde punctato-striatis, pedibus testaceis. Long. ·23.

Le Conte, Agassiz' Lake Superior, 217.

Eagle Harbor, Lake Superior. Equals in size and form H. grandis, but is quite different.

2. H. lacustris, supra piceo-testaceus, oblongus, capite virescente, thoraceque granulis depressis scabro, hoc latitudine fere duplo breviore, lateribus antice rotundatis, postice fere rectis, angulis posticis obtusis, 5-sulcato, sulcis intermediis undatis, elytris profunde punctato-striatis, subtus niger, pedibus testaceis. Long. ·18.

Le Conte, Agassiz' Lake Superior, 217.

Eagle Harbor, Lake Superior. By a typographical error, the length is printed ·23.

3. H. obscurus, nigro-piceus, elongato-oblongus, supra obsolete æneescens, thorace ad latera rotundato granulato, latitudine sesqui breviore, angulis posticis obtusis, 5-sulcato, sulcis intermediis undatis, elytris grosse punctato-striatis, interstitiis parce subtiliter punctulatis, pedibus testaceis. Long. ·17.

Le Conte, Annals of the Lyceum of Nat. Hist. New York, 5, 210.

San Francisco and Colorado River, California.

4. H. nitidulus, elongatus, nigro-piceus, nitidus, thorace latitudine sesqui breviore, lateribus late rotundatis, parce granulatis, angulis posticis obtusis, 5-sulcato, sulcis intermediis fere rectis, elytris fortiter punctato-striatis, interstitiis subtilissime punctulatis, tibiis tarsisque testaceis femoribus piceis. Long. ·12.

Eagle Harbor, Lake Superior, one specimen.

5. H. linearis, elongatus, capite thoraceque æneis, granulatis, hoc latitudine sesqui breviore, lateribus fere rectis, angulis posticis rectis, sulcis intermediis

undatis, elytris testaceis fusco-nebulosis, pone medium subdilatatis, profunde punctato-striatis. Long. ·12.

One specimen from Fort Laramie, Nebraska. Longer and narrower than the others, and easily separated from all the following by the thorax being (as in the previous ones) not at all narrowed towards the base.

6. H. lineatus, elongatus, capite granulato viridiæneo, thorace testaceo, viridiæneo tincto, latitudine plus sesqui breviore, postice subangustato, et lateribus subsinuato, angulis posticis rectis, parce granulato, sulcis intermediis undatis, elytris postice vix dilatatis, striis profunde punctatis, interstitiis convexis, subtilissime parce punctulatis, testaceis fusco-maculatis. Long. ·10—·15.

Say, Journ. Acad. Nat. Sc. 3, 200.

Abundant in the Middle States, at Lake Superior, and in Nebraska. The under surface as usual is black, the oral organs, the feet and inflexed margin of the prothorax are testaceous. Of the markings of the elytra, the most obvious are an inverted V at the suture, and two small rounded spots each side, all behind the middle. Sometimes the thorax is almost entirely brassy green, but the inflexed part always retains a testaceous tint. The very small specimens are found at Lake Superior, and are accompanied by others of the usual size.

7. H. inquinatus, oblongus, capite thoraceque nigro-æneis, granulatis, hoc latitudine sesqui breviore, postice vix angustato, lateribus late rotundatis, angulis posticis rectis, marginibus testaceis, sulcis intermediis undatis, elytris fusco-testaceis, piceo-nebulosis, striis profundis grosse punctatis, interstitiis convexis, sutura alternisque paulo altioribus. Long. ·13.

Mannerheim, Bull. Mosc. 1852, 343.

Helophorus consimilis Mannh. ibid. 1853.

Russian America, Baron Chaudoir; one specimen, from Eagle Harbor, Lake Superior. Easily known by the deeper and more coarsely punctured striæ, and the unequal elevation of the intermediate spaces of the elytra: the elevation of the 7th interstice is greater towards the base.

The specimen sent to me as H. consimilis only differs from the type in being less dark. It may be doubted whether this is different from H. auricollis Esch. (Entomographien, 43: Mannh. Bull. Mosc. 1843, 260) described from Unalaschka.

8. H. scaber, obscure niger, capite thoraceque confertim granulatis, hoc inæquali latitudine sesqui breviore postice angustato, lateribus crenulatis antice rotundatis, postice obliquis, angulis posticis fere rectis, sulcis minus profundis intermediis undatis, elytris punctato-striatis, sutura elevata, pone basin oblique valde impressis, interstitiis 3, 5 et 7mo tuberculis magnis ornatis. Long. ·13.

Le Conte, Agassiz' Lake Superior, 217.

Very abundant at Lake Superior. The third interstice has four elevations, one of which is at the base, the fifth has three, and the seventh has two besides the humeral carina: there is also on the ninth interstice a small tubercle near the tip. These tubercles are arranged so as to form oblique series, which are parallel with the oblique impression behind the base of the elytra. This species is certainly allied to, if not identical with H. tuberculatus of Northern Europe, but I have not had the opportunity of comparing specimens, nor can I find any description sufficiently precise to warrant their union.

H. angustulus Mannerh. (Bull. Mosc. 1853) from Russian America, is unknown to me. It seems allied to H. linearis *Lec.*, but the anterior angles of the thorax are described as being very much produced and acuminate.

HYDROCHUS Germ.

1. H. scabratus, minus elongatus, griseo-argenteus, thorace latitudine haud longiore, postice subangustato, lateribus subsinuatis, disco parce punctato, inæquali, 5-foveato, fovea antica media maiore et profundiore, elytris striatim punctatis, dorso planiusculis, oblique biimpressis, postice valde declivibus tu-

berculo magno obliquo gibbosis, et tuberculis duobus alteris in interstitio 4to ornatis. Long. ·22.

Mulsant, Ann. Sciences Phys. Nat. Lyon, 7, 373 (1844).

Hydrochus gibbosus Mels. Proc. Acad. Nat. Sc. 2, 99. (Oct. 1844).

Middle and Southern States: sometimes quite abundant. The interstices of the elytra are flat, and much wider than the striæ.

2. H. c a l l o s u s, subelongatus, griseo-niger, thorace latitudine sublongiore postice angustato, lateribus subsinuato, disco inæquali sat punctato, trisulcato, sulco medio maiore et profundiore, elytris profunde punctato-striatis, vage biimpressis, interstitiis angustis, 4to tuberculis duobus parvis, serieque postica obliqua ornatis, palpis tarsisque rufis. Long. ·17.

One specimen from Louisiana, sent me by Mr. Wapler. This species is allied to the preceding, but is narrower, the punctures of the elytra are much larger, so that the striæ are as broad as the interstices; they are less declivous behind, and the tubercles, although similar in position, are less elevated.

3. H. s q u a m i f e r, elongatus, supra griseus, æneseens, capite thoraceque confertim punctatis, granulatis, squamulis fuscis vestitis, thorace latitudine paulo longiore, lateribus sinuatis antice vix rotundatis, utrinque vage sulcato, medio vage trifoveato, elytris profunde crenato-striatis, interstitiis angustis, sutura pluribusque postice elevatis, ad medium extrorsum fovea obliqua impressis, pedibus palpisque obscure rufis femoribus piceis. Long. ·15.

One specimen found at Lake Superior. The suture is elevated for its whole length: the third interstice is a little higher than the second: the fourth is elevated from the middle half way to the apex: the fifth is elevated like the third, but is interrupted adjacent to the elevation of the fourth: the lateral oblique fovea extends over the 8th and 9th interstices, and at that place the striæ are slightly sinuous.

4. H. r u g o s u s, elongatus, supra griseo-argenteus cupreo-micans, capite thoraceque rude punctatis, hoc latitudine haud longiore, trapezoideo, lateribus fere rectis, dorso vage 5 foveato, foveis anticis tribus maioribus, elytris thorace parum latioribus profunde striatim punctatis, interstitiis alternatim subelevatis, calloque parvo postico parum elevato instructis, striis 7ma et 8va ad medium sinuatis, subtus niger, tibiis tarsisque rufis. Long. ·24.

Mulsant, Ann. Sc. Phys. Nat. Lyon, 7, 373.

Middle States, not common. This species is the largest I have seen, and is readily distinguished. The two posterior foveæ of the thorax are the basal impressions, the two inner ones which are usually immediately behind the dorsal one are hardly apparent. Although the interstices of the elytra are not elevated, they are hardly wider than the rows of punctures.

5. H. i n æ q u a l i s, elongatus, griseo-æneus, thorace rude sat dense punctato, postice angustato, latitudine paulo longiore, lateribus crenulatis subsinuatis, dorso 5-foveato, foveisque basalibus externis parvis, elytris profunde crenato-striatis, interstitiis pluribus elevatis et interruptis, pedibus rufis, femoribus obscuris. Long. ·12.

One specimen from Louisiana, Mr. Wapler. Of the same size and form as several of the following ones, but distinguished by the greater inequality of the elytra.

Head and thorax coarsely and moderately densely punctured, the latter a little longer than wide, gradually narrowed to the base, sides subsinuate, distinctly crenulated: disc with three anterior and two posterior foveæ, which are large and moderately deep: at the posterior angles, which are obtuse, are other small but deep foveæ. The elytra are elongate, wider than the thorax, strongly crenato-striate, with the interstices narrow; the suture, the 5th, 7th and 9th are elevated, the three latter interrupted behind the middle, giving the appearance of a lateral transverse impression; the fourth is elevated adjacent to the interruption of the third: on the 3d and 4th interstices near the middle is seen a broad fovea tinged with purple, and a slight impression is also seen behind the humerus, and yet

another behind the posterior elevation of the fourth interstice, causing the elytra to appear somewhat gibbous.

6. H. excavatus, elongatus argenteo-niger, capite thoraceque sat dense punctatis, hoc latitudine vix longiore, postice magis angustato, lateribus haud sinuatis crenulatis, disco 5-foveato, foveisque basalibus duabus parvis, elytris profunde crenato-striatis, interstitiis angustis, 4, 5 et 7 postice suturaque subelevatis (4to interrupto), pedibus rufis. Long. ·13.

One specimen from Louisiana was given me by Dr. Schaum. This species is closely related to the preceding, but the color is darker, and the inequalities of the elytra are much less apparent, the fifth interstice is elevated about the middle and interrupted; adjacent to the interruption the fourth and seventh are slightly elevated: the 8th insterstice is slightly foveate at the middle, and there is a faint impression behind the humerus.

7. H. rufipes, elongatus, griseo-argenteus, capite thoraceque sat dense punctatis, hoc latitudine haud longiore, postice subangustato, lateribus haud sinuatis crenulatis, disco 5-foveato, foveis duabus basalibus parvis, elytris crenato-striatis, interstitiis striis latioribus, pluribus subelevatis et interruptis, purpureo-variegatis, pedibus rufis. Long. ·13.

Melsheimer, Proc. Acad. Nat. Sc. 2, 100.

Middle and Southern States. Closely related to the preceding, but distinguished by the thorax being less narrowed behind, and the interstices of the elytra being distinctly wider than the striæ. Dr. Melsheimer's description reads, "elytra strongly crenate striate, interstices fine, elevated, second, third and fourth lines with interruptions at the middle." In comparison with other species these characters are liable to produce error, and I therefore subjoin a new description.

Elytra wider than the thorax, strongly crenate striate, with the interstices convex but distinctly wider than the striæ; the suture is slightly elevated, the fifth elevated posteriorly and interrupted, adjacent to the interruption the fourth is elevated, the outer ones are also slightly undulated and elevated about the middle: on the third interstice are three small purple spots, and the interrupted portion of the sixth is also purple.

8. H. foveatus, elongatus, griseo-argenteus, thorace vage punctato latitudine paulo longiore, postice vix angustato, lateribus fere rectis, dorso foveis 5 maximis profundis excavato, foveisque duabus basalibus parvis, elytris punctis grossis crenatis, postice callosis, sutura interstitiisque alternis elevatis, 3 et 5 postice interruptis, 4to postice elevato, pedibus testaceis, genubus obscuris. Long. ·14.

Haldeman, Stansbury's Exped. to Great Salt Lake, 375.

Fort Gates, Texas; for the typical specimen collected by Lieut. Haldeman, I am indebted to his brother, Prof. S. S. Haldeman. The dorsal foveæ of the thorax are larger and the external basal foveæ much smaller than in the next species to which this related, and the elevations of the elytra are much more distinct. They are slightly mottled with dark gray; the punctures are very large, and not closely placed; the insterstices are scarcely wider than the striæ: the suture, 3d, 5th, 7th and 9th interstices are more elevated, the 3d and 5th are interrupted behind the middle; the posterior part of the 3d is similar in elevation to the anterior part and extends to the tip, but the fifth rises into a somewhat abrupt callus; the fourth interstice adjacent to the interruption is slightly elevated.

Mr. Haldeman has incautiously stated that this species is allied to H. scabratus, but its form is quite different, and an attentive examination shows but little affinity between them.

9. H. variolatus, griseo-argenteus, elongatus, thorace inæqualiter rude punctato, latitudine paulo longiore, postice paulo angustato, lateribus crenulatis subsinuatis, dorso foveis 5 magnis, alterisque basalibus duabus profundis, elytris valde crenato-striatis, interstitiis striis fere angustioribus 5to pone medium subcalloso, maculis pluribus parvis purpureis ornatis, pedibus testaceis, genubus femoribusque basi obscuris. Long. ·11.

Le Conte, Annals of the Lyceum of Nat. Hist. of New York, 5, 211.

San Diego, California. Except the slight posterior elevation of the fifth interstice, there is scarcely any perceptible inequality on the elytra.

10. H. vagus, elongatus, griseo-æneus, thorace latitudine vix longiore, postice subangustato, lateribus crenulatis fere rectis, vage grosse punctato, foveis 5 modice profundis, alterisque duabus basalibus profundis excavato, elytris crenato-striatis, interstitiis striis æqualibus, purpureo-variegatis, pedibus testaceis, basi et genubus obscuris. Long. ·09—·10.

Le Conte, Ann. Lyc. Nat. Hist. New York, 5, 211.

Colorado River, California, abundant. The dorsal foveæ of the thorax are smaller and less deep than in the preceding, and the striæ of the elytra are finer. There is hardly any distinct inequality to be observed, though the fifth interstice is slightly elevated behind the middle.

Dr. Zimmermann once wrote me that this species had been found by him in South Carolina. I have never seen any specimens from that locality; the species next described is somewhat similar, but could hardly be confounded with it.

11. H. simplex, elongatus, nigro-æneus, thorace rude, sat dense punctato-latitudine sublongiore, postice vix angustato, lateribus rectis vix crenulatis, dorso 5-foveato, foveisque basalibus duabus profundis, elytris fortiter crenato-striatis, interstitiis striis æqualibus, pedibus rufo-testaceis. Long. ·10.

One specimen from Louisiana was kindly given me by Mr. Wapler. The thorax is less narrowed behind, more densely punctured, and less deeply foveate than in H. vagus.

Ochthebius Leach.

1. O. puncticollis, ellipticus nigro-piceus, thorace grosse punctato lateribus valde rotundatis, profunde 5-sulcato, sulcis externis dilatatis extrorsum concavis, intermediis subsinuatis, elytris convexiusculis, crenato-striatis, breviter parce pilosis. Long. ·07.

Le Conte, Ann. Lyc. Nat. Hist. New York, 5, 210.

Found by me near Tucson, south of Gila River.

2. O. interruptus, longiusculus, testaceo-æneus, nitidus, transversim subquadrato subtiliter rugose punctato, trilineato, lineis externis interruptis, antice transversim impresso, et utrinque linea extrorsum concava insculpto marginibus depressis testaceis, elytris confertim punctato-striatis, interstitiis rugosis, pedibus testaceis. Long. ·05.

Le Conte, Ann. Lyc. Nat. Hist. New York, 5, 210.

San Diego, California. The large fovea each side of the thorax appears in some lights to be rather a broad line concave outwards.

3. O. lineatus, elongatus, capite thoraceque viridi-æneis, hoc transversim subquadrato subtiliter alutaceo, transversim biimpresso, disco subtiliter trilineato, lineaque antica utrinque laterali extrorsum concava, marginibus depressis testaceis, elytris testaceis æneo-micantibus subtilius punctato-striatis; subtus testaceus, pedibus pallidioribus. Long. ·045.

Le Conte, Ann. Lyc. Nat. Hist. New York, 5, 211.

Colorado River, California.

4. O. cribricollis, testaceo-æneus, margine pedibusque testaceis, thorace transverso, grosse punctato, subtilius canaliculato, linea arcuata laterali impresso, elytris punctato-striatis interstitiis rugulosis. Long. ·07.

Le Conte, Agassiz' Lake Superior, 217.

Eagle Harbor, Lake Superior.

5. O. nitidus, virescenti-niger nitidus, thorace transverso lateribus rotundatis, marginibus depressis diaphanis testaceis, disco convexo profunde canaliculato antice 6-, postice 4-fossato, fossulis externis in marginem impressis, (unde discus lateribus sinuatus et angulis anticis prolongatis apparet), elytris convexis, punctis maioribus remotis striatis, pedibus rufis. Long. ·06.

Le Conte, Agassiz' Lake Superior, 217.

One specimen found at Eagle Harbor, Lake Superior. The description given by me is imperfect, on account of the thin margins of the thorax having been partly destroyed in the only specimen obtained: thus I have stated that the thorax was sinuous on the sides, while in reality the outline of the disc only is sinuous; the lateral margins of the thorax being continuous and regular in their outline. The discovery of the next specimen, which is precisely similar in sculpture, though only half as large, has enabled me to correct this error.

6. O. fossatus, capite thoraceque viridi-æneis nitidis, hoc transverso lateribus rotundatis marginibus depressis diaphanis testaceis, disco convexo profunde canaliculato, antice 6, postice 4-fossato, fossulis externis in marginem impressis (unde discus sicut in O. nitido apparet), elytris testaceis convexis, punctis maioribus striatis, subtus æneo-niger, pedibus pallidis. Long. ·045.

One specimen found at the Colorado River, California.

7. O. Holmbergi, longiuscula capite thoraceque viridi-æneis, thorace subtransverso subcordato postice angustato, lateribus rotundatis postice subsinuatis, transversim biimpresso, versus basin utrinque fovea magna parum profunda obliqua notato, anticeque linea arcuata versus latera insculpto, elytris confertim punctato-striatis. Long. ·05.

Mäklin, (per Mannerh.) Bull. Mosc. 1853.

Peninsula of Kenai, Russian America; Baron Chaudoir. Nearly resembles in form O. interruptus *Lec.* but the thorax is less transverse, and more narrowed posteriorly; the thorax is destitute of the dorsal lines seen in that species. The medial channel is wanting in my specimen, but according to the description given by Mäklin, is sometimes visible, though faint.

HYDRÆNA Kug.

1. H. pensylvanica, atro-fusca, palpis pedibus, thoracisque marginibus testaceis, thorace subquadrato dense punctato ad latera impresso, elytris subopacis, punctis confertis subquadratis seriatis. Long. ·075.

Kiesenwetter, Linn. Entom. 4, 166.

New York and Lake Superior; sometimes quite abundant. As the only specimen examined by Mr. Kiesenwetter was found at New York; the applicability of the specific name is not obvious. The punctures of the elytra, although described by him as round, appear to me quadrate, and the intervals are quite distinctly elevated.

2. H. punctata, longiuscula, supra piceo-testacea nitida, capite thoracisque disco infuscatis, hoc subquadrato minus subtiliter sat dense punctato, ad latera longitudinaliter impresso, elytris punctis rotundatis sat dense seriatim positis, palpis pedibusque testaceis. Long. ·95.

Pennsylvania, Rev. D. Ziegler. This species is larger and narrower than the next, which at first sight it resembles: the thorax is more coarsely punctured, and the sides are distinctly impressed for the whole length.

3. H. marginicollis, nitida, capite thoraceque nigris hoc antice posticeque testaceo, subtilius minus crebre punctato, subquadrato, lateribus antice late foveatis; elytris piceo-testaceis punctis rotundatis sat dense seriatis, palpis pedibusque testaceis. Long. ·05.

Kiesenwetter, Linn. Ent. 4, 177.

New Orleans, Dr. Schaum and Mr. Wapler. One sex is a little broader than the other, but in neither is the thorax one half wider than long as described by Kiesenwetter: the large broad fovea at the side of the thorax before the middle is not mentioned by him, although he states that the longitudinal lateral impressions are almost wanting. Notwithstanding these discrepancies, I must regard my specimens as authentic, one of them having been received by me from Dr. Schaum as a type.

Laccobius Er.

1. L. agilis, subrotundus, capite thoraceque nigro-æneis minus subtiliter punctatis, clypei angulis anticis, thoracisque lateribus postice intus prolongatis, pallidis elytris seriatim punctatis pallidis, griseo-nebulosis; subtus niger, pedibus pallidis. Long. ·09—·11.

Randall, Bost. Journ. Nat. Hist. 2, 19.

Laccobius punctulatus Mels. Proc. Acad. Nat. Sc. 2, 100.

Middle States, Lake Superior, and Kansas: abundant, very similar to the European L. minutus, but on comparison I find that the punctures of the thorax are considerably larger: the pale lateral portion is posteriorly much less sharply defined than in the European species.

2. L. ellipticus, ellipticus, capite thoraceque nigro-æneus, minus subtiliter sat dense punctatis, clypei angulis anticis, thoracisque lateribus postice intus prolongatis pallid elytris seriatim punctatis, pallidis griseo-nebulosis, subtus niger, pedibus pa dis. Long. ·10.

San Francisco an ! San Diego, California. Narrower than the preceding, with the head and thorax more densely punctured.

Berosus Leach.

A. Elytrorum humeri rotundati.

1. B. punctatissimus, ovatus convexus supra luridus opacus, punctatissimus, capite æneo, vertice tenuiter carinato, thorace linea tenui dorsali lævi, vittis tribus æneis, intermedia duplicata, ornato, elytris fusco-nebulosis, striis exaratis punctulatis postice profundius punctatis, interstitiis planis, apice truncato-emarginatis extrorsum 1-spinosis, subtus niger, pedibus testaceis, femorum dimidia basali nigra. Long. ·25—·30.

Le Conte, Ann. Lyc. Nat. Hist. New York, 5, 211.

San Diego, California, abundant: found also at Sacramento by Messrs. Child and Wittick. The tip of each elytron is slightly emarginate, with a small but acute spine at the outer angle of the emargination. The medial vitta of the thorax is composed of two confluent or closely approximated vittæ: at times the vittæ are so dilated that they all become confluent, and the disc of the thorax presents a large brassy green irregular spot, and the margins are yellow: at other times the lateral vittæ are attenuated anteriorly, so as to appear like subbasal spots with narrow anterior prolongations. The species is readily known from all others here described by the very dense and rugous punctuation of the elytra.

2. B. miles, elongatus subovatus convexus, lurido-testaceus nitidus, capite punctato, cupreo-æneo, occipite subtiliter carinato, thorace subtilius punctato, æneo-bivittato, elytris striis punctatis, interstitiis disperse punctatis, maculis pluribus nigris ornatis, apice emarginatis utrinque bispinosis, scutello æneo, postpectore nigro. Long. ·27.

One specimen found by Lieut. Haldeman, at Ringgold Barracks, Texas. A remarkably beautiful species, in which the elytral striæ are not very deep: the basal one is between the 1st and 2d, nearly one third the length of the elytra: the interstices are flat, sparsely punctured, with an irregular series of larger punctures between the 2d and 3d. The spots are scattered; several are confluent before the middle near the suture, while those behind the middle form two angulated lines confluent externally about the 6th interval, with an opposite spot on the 8th, 9th and 10th: the humeral callus and a neighboring spot are also black: the spine at the suture is as long as the outer one.

3. B. aculeatus, elongato-ovalis, testaceus, supra convexus grisescens, capite confertim punctato, obscure æneo, vertice leviter impresso, occipite subtiliter carinato, thorace sat dense punctato, elytris striis profundis punctatis, interstitiis modice convexis irregulariter uniseriatim punctulatis, guttis nonullis fuscis ornatis, ad apicem (♀) singulatim vel (♂) coniunctim breviter acuminatis. Long. ·15.

North Carolina, Dr. Zimmermann. The elongate oval body, and deep elytral striæ will distinguish this species, which seems to be variable in character. The head of the male in my possession is entirely bronzed; the thorax without any distinct spots, and the elytra each with four spots, viz: one humeral, one on the 2d and 3d intervals before the middle, one on the same intervals behind the middle, and the fourth on the 9th interval about the middle: the elytra are separately prolonged into a very short point at the tip. In the female the head like the rest of the upper surface is grayish testaceous, with only the occiput bronzed: the thorax anteriorly has two dark discoidal spots; the elytra besides the spots above mentioned have a dark spot on the fifth and sixth intervals about the middle, and their tips are prolonged conjointly into a moderately long and acute spine.

4. B. subsignatus, flavo-testaceus, ovalis supra convexus, subopacus capite confertim punctato, æneo, postice subtiliter carinato, thorace dense at haud profunde punctato, guttis duabus anticis nigris sæpe signato, elytris striis profundis punctatis, interstitiis planis, irregulariter uniseriatim punctulatis, macula quadrata utrinque ante medium versus suturam, lituraque communi W-formi pone medium signatis, ad apicem (♂) rotundatis vel (♀) brevissime acuminatis. Long. ·15.

Fort Gates and Fredericksburg, Texas; Lieut. Haldeman. The spots are arranged as in the second specimen of the preceding species, and the W-shaped mark is formed by the confluence of the posterior ones; the humeral dot and the one on the 9th interval are sometimes visible, but are frequently wanting. It is scarcely necessary to mention that the scutellum, as in other species, is brassy.

5. B. pantherinus, flavo-testaceus, ovalis, supra convexus nitidus, capite confertim punctato, æneo, vertice leviter impresso, occipite subtiliter carinato, thorace confertim punctato, maculis anticis duabus approximatis æneo-nigris, elytris striis fortiter punctatis, interstitiis planis uniseriatim irregulariter punctulatis, maculis plurimis nigris tesselatis, sutura nigricante, ad apicem (♂) rotundatis. Long. ·15.

One specimen, found at Quincy, Illinois, was given me by Mr. Willcox. Resembles in form the preceding; the black spots of the elytra are large and about 10 on each, giving them almost a tesselated appearance.

6. B. peregrinus, ovalis, testaceus supra convexus nitidus, capite æneo confertim punctato, vertice modice impresso, occipite obsolete carinato, thorace confertim punctato, lineis duabus approximatis, vel etiam disco toto infuscato, elytris striis profundis punctatis, interstitiis subseriatim punctulatis, ad apicem rotundatis. Long. ·15.

Hydrophilus peregrinus Herbst, Käfer, 7, 315; tab. 114, fig. 11.

Berosus auritus Mels. Proc. Acad. Nat. Sc. 2, 100.

Middle and Southern States, not rare. Varies very much in color, the spots of the thorax being sometimes reduced to two small points, while at others they are expanded and confluent, so as to leave only the sides and apical margin testaceous. The elytra are spotted as in B. aculeatus, above described; the spots are, however, at times nearly obliterated. What especially distinguishes the species is the deeper longitudinal impression of the vertex, which gives the appearance of two very flattened interocular tubercles, as described by Herbst. Dr. Melsheimer's species is known to me by his kindness in furnishing me with a typical specimen.

7. B. fraternus, supra griseo-testaceus, ovalis convexus, nitidus, capite æneo thoraceque sat dense punctatis, hoc vittis duabus approximatis fuscis, elytris fusco nebulosis, striis punctatis postice profundis, interstitiis planis disperse punctulatis, 3, 5 et 7, punctis maioribus paucis notatis, ad apicem rotundatis, subtus fuscus pedibus testaceis. Long. ·17.

Fort Laramie, Nebraska, one specimen. Nearly resembles the next, but the

thorax is more densely punctured; the small punctures of the elytra are scattered, and the large ones more distinct.

8. B. striatus, supra griseo-testaceus, sæpe obscurus, nitidus ovalis convexus, capite æneo sat dense punctato, thorace modice punctato, vittis duabus sæpe confluentibus fuscis, elytris griseo-nebulosis, striis postice profundis fortiter punctatis, interstitiis parum convexis, irregulariter uniseriatim punctatis, 3, 5 et 7 punctis paucis maioribus impressis, ad apicem rotundatis; subtus niger, pedibus testaceis. Long. ·17—·21.

Say, Journ. Acad. Nat. Sc. 5, 188.

Middle States, abundant; for a typical specimen I owe my acknowledgments to Dr. Melsheimer. This species is nearly related to several others. From the preceding it may be known, as already stated, by the small punctures of the elytra being almost placed in series, by the large punctures of the 3d, 5th and 7th intervals being less conspicuous, by the punctures of the striæ being larger, and finally by the thorax being less densely punctured.

From B infuscatus it differs by the striæ of the elytra being strongly impressed, especially towards the tip.

9. B. infuscatus, ovalis, convexus griseo-testaceus, sæpe obscurus nitidus, capite æneo sat dense punctato, thorace modice punctato, vittis duabus sæpe confluentibus notato, elytris griseo-nebulosis, striis subtilibus punctatis postice profundioribus, interstitiis planis uniseriatim irregulariter punctulatis, 3, 5 et 7mo punctis paucis maioribus impressis ad apicem rotundatis, subtus niger, pedibus testaceis. Long. ·23.

Middle and Southern States, not rare; specimens from New Orleans were given me by Dr. Schaum and Col. Motschulsky. This species is a little narrower than B. striatus, but the most reliable difference is found in the elytral striæ, which are fine, and sometimes almost obsolete towards the base.

10. B. ordinatus, ovalis convexus, supra obscure griseo-testaceus nitidus, capite sat dense punctato æneo, thorace sat dense punctato, vittis duabus approximatis nigris notato, elytris griseo-nebulosis, striis profundis punctatis postice exaratis, interstitiis planis, internis duobus irregulariter, reliquis fere ordinatim uniseriatim punctatis ad apicem rotundatis; subtus niger, pedibus testaceis. Long. ·20.

One specimen, New York. Resembles B. fraternus in having the thorax somewhat densely punctured, but differs by the larger size and more regular arrangement of the punctures of the intervals of the elytra; the striæ are deep, becoming still deeper towards the tip, and their punctures are smaller and more closely placed than in B. striatus.

11. B. punctulatus, oblongo-ovalis convexus, supra pallide testaceus nitidus, capite confertim punctato, æneo, thorace modice punctato, tenuiter bivittato, elytris striis punctatis postice paulo profundioribus, interstitiis irregulariter seriatim punctulatis, 3io punctis paucis maioribus impresso, guttis nigris in seriebus tribus obliquis ornatis ad apicem rotundatis; subtus infuscatus, pedibus testaceis. Long. ·20.

Le Conte, Annals of the Lyceum, Nat. Hist. New York, 5, 211.

Colorado River, California; also found by Dr. Thos. H. Webb at the Copper Mines of the Gila. Also resembles the four preceding; the striæ of the elytra are fine and well impressed, growing a little deeper behind; they are finely punctured, as in B. ordinatus and fraternus, but the interstitial punctures are much smaller. The thorax is less narrowed anteriorly, so that the body is less attenuated in front. The spots of the elytra are arranged in three oblique series; they are placed as follows: two on the 2d: three on the 3d; one on the 4th; three on the 5th; one (humeral) on the 6th; and one on the 9th and 10th. According to a specimen sent by Mr. Motschulsky, this is B. californicus† of his catalogue of Russian Hydrocanthares. The specimen is more shining, and its thorax is more densely punctured, but is hardly sufficiently different to indicate another species; it was found in the valley of the Sacramento.

12. B. exilis, oblongo-ovatus convexus, supra luridо-testaceus, nitidus, capite thoraceque cupreo-æneis, confertim punctatis, hoc margine lato apicali lateribusque pallidis, elytris parce fusco guttatis, striis profundis, fortiter punctatis, interstitiis convexis uniseriatim punctulatis, ad apicem rotundatis; subtus niger, pedibus testaceis. Long. ·08.

Le Conte, Ann. Lyc. Nat. Hist. New York, 5, 211.

Gila River, near the Pima Villages. Broader than the next species, and by its small size very distinct from all the preceding.

13. B. pallescens, elongato-ovalis convexus, totus testaceus, capite thoraceque sat dense punctatis, occipite thoracisque medio obscurioribus, elytris striis profundis punctatis, interstitiis planis irregulariter uniseriatim punctulatis, ad apicem rotundatis. Long. ·06—·08.

One specimen from either New York or Pennsylvania.

B. Elytrorum humeri angulati.

14. B. altus, nigro-æneus, nitidus elongato-ovalis, convexissimus, compresse-elevatus, capite sat dense punctato, thorace lunato subtilius punctato, elytris striis punctatis, internis antice obsoletis, postice profunde exaratis, interstitiis disperse punctulatis. Long. ·08.

New Orleans; this interesting discovery we owe to Mr. Wapler. The striæ of the elytra are obliterated at the base, and the inner ones are more so than the outer ones; by this means the short basal stria seen between the first and second in the species above described here becomes wanting. The thorax is broadly rounded at base, and emarginate at tip; these curves converge rapidly towards the sides, which are thereby very much shortened, and the form becomes lunate with rounded angles; the punctures are small, but more distinct at the sides than on the disc. This species belongs to Volvulus (Brullé,) but the reasons given by Erichson (Käfer Mark Brand. 204) for uniting Volvulus with Berosus are so just, that I have adopted his conclusions.

B. maculosus Mannerh. Bull. Mosc. 1853, from Russian America, is unknown to me. It must be allied to B. punctatissimus, but differs in being only finely and not densely punctured.

HYDROPHILUS Geoffroy.

In this genus I reunite all those species in which the prosternum is small and sulcate; the metasternum produced into a long sharp posterior spine, and the posterior tarsi compressed and ciliate.

Our species are tolerably numerous, and may be naturally divided as follows:

Palpi maxillares articulo ultimo breviore; (antennarum clava difformi.)
- a. Prosternum totum fissum — Sp. 1.
- b. Prosternum margine antico integro — Sp. 2.

Palpi maxillares articulo ultimo longiore vel præcedenti æquali; (antennarum clava regulari)
- c. Prosternum margine antico integro — Sp. 3—9. (TROPISTERNUS Sol.)
- d. Prosternum totum fissum — Sp. 10.

a.

1. H. ovalis, olivaceo-niger nitidus, ovalis convexus utrinque attenuatus, elytris punctorum seriebus solitis striisque pluribus externis versus apicem notatis, ad apicem coniunctim rotundatis, abdomine pubescente, segmentis tribus ultimis medio nitidis subelevatis, antennis palpisque rufo-piceis. Long. ·30.

Ziegler, Proc. Acad. Nat. Sc. 2, 45.

New York and Pennsylvania, rare. The claws of the anterior tarsi in the male are long and not toothed, and the tarsi themselves are more flattened than in the female; the latter has the claws armed with a large sharp tooth beneath. The inner spur of the anterior tibiæ of the male is short, flattened and truncate, while that of the female is longer and acute.

b.

2. H. triangularis, olivaceo-niger paulo convexus, elongato-ovalis utrinque attenuatus, elytris punctorum seriebus solitis, alterisque duabus marginalibus notatis, ad apicem coniunctim rotundatis, abdomine articulo 1mo toto pubescente reliquis nitidis medio subelevatis, singulis macula utrinque laterali triangulari notatis, palpis antennisque piceis. Long. 1·3—1·45.

Say, Journ. Acad. Nat. Sc. 3, 201.

Hydrophilus lugubris Motsch. Bull. Mosc. 1845.

Stethoxus tuberculatus Lec. Proc. Acad. Nat. Sc. 7, 221.

New York, Georgia, Texas, Nebraska, California. The anterior tarsi of the male are more compressed than in the female, the last joint is dilated into a sharp edged somewhat warped surface, and the claws are very unequal and not toothed. In the female the claws are equal and armed beneath with a large acute tooth. The Californian specimens are scarcely perceptibly less attenuated at each end, but do not seem sufficiently distinct to be considered a different species. Col. Motschulsky, to whom I gave specimens for comparison, informs me that it really is his H. lugubris, but that the short description given by him is erroneous, having been drawn partly from another very different species from the Philippine Islands.

The last mentioned synonym was founded on two specimens from the Gila, brought by Dr. Webb; at first sight they appeared to constitute a separate species, the elytra being marked by several shallow but broad grooves; on examining them again, I am convinced that, although they agree in this character, it must be regarded as a malformation; as I find on the sternum and other parts of the body corrugations which are the result of injury or disease; and as in form and in the pubescence of the abdomen they agree with the present species, it would be proper to place them under it.

c.

3. H. lateralis, elongato-ovalis utrinque attenuatus convexus, subtilissime punctulatus atro æneus, nitidus, thoracis elytrisque lateribus anguste, metasterno, pedum partibus palpis antennis clypeique angulis anticis flavis. Long. ·33.

Herbst, Käfer, 7, 296; tab. 113, fig. 7. ? Fabr. Ent. Syst. 1, 183; Syst. El. 1, 251.

Hydrophilus nimbatus Say, Journ. Acad. Nat. Sc. 3, 203.

New York, Georgia, Nebraska, Texas. Fabricius describes it from South America, and the identity of his species with ours is therefore doubtful. The legs vary in color; sometimes they are piceous with yellow margins; sometimes they are yellow with only the base of the thighs blackish. The prosternum is sometimes yellow and sometimes black. The abdomen is entirely pubescent, and usually appears black; sometimes a range of small yellow spots is seen each side near the margin.

4. H. limbalis, olivaceo-æneus, subtilissime punctulatus, elongato-ovalis convexus nitidus, capite antice, ore, mesosterno, pedibus, thoracis lateribus late, elytrorum margine ante medium et sæpe ante apicem latiore flavis. Long. ·31—·34.

California, at San Diego and the Colorado. Differs from the preceding by its more regularly elliptical form, and by the broader yellow margin; that of the elytra is wider at the base, and there appears triple; at the middle it becomes narrower, and immediately before the apex is frequently dilated by the addition of several small linear spots. The prosternum is yellow, and the base of the thighs black; the abdomen each side is marked with an indistinct series of yellow spots.

Varieties occur in which the sides of the elytra have three or four additional indistinct yellow lines running from the broader anterior portion of the yellow margin to the lip.

5. H. californicus, elongato-ovalis, antice paulo magis attenuatus, convexus, ater æneascens, nitidus subtiliter punctulatus, antennis palpis pedibusque

at base; those indicating the antero-posterior diameter larger than the others, flake-white at base. Diameter ¾ inch.
Hab. Ousima.

8. ACTINIA INORNATA. Body papillose, papillæ oval, not very numerous; tentacula long, crowded in two or three rows; sulcus of the mouth indicated by protuberances at the margin; space between mouth and tentacula rather broad; color dark olive, paler above, darkest in a circle around the mouth. Height two inches.
Hab. China.

9. ACTINIA MULTICOLOR. Subcylindrical, brownish, with large purple papillæ and ten whitish stripes; a smooth band just beneath the tentacula, crowded with vertical crimson lines; mouth large, flesh-colored, with a deep longitudinal sulcus; tentacula also flesh-colored, thick, short, suddenly tapering to a blunt point, rather few in number, crowded together in two rows between the mouth and the margin. Height 1 inch.
Hab. China.

10. ACTINIA NAPENSIS. Smooth, lineated, olivaceous, greenish above and brownish below; upper margin crenulated; disc not broader than the middle of the body; tentacula placed in two rows near the margin, rather stout, pointed, dark-greenish, trimaculate with white on their inner sides; mouth protuberant, much lobed, spotted with white without and streaked with yellow within. Attached to stones beneath the sand. Height 1 inch.
Hab. Loo Choo.

CANCRISOCIA, n. g. Tentacula simplicia elongata, omnino retractilia. Basis valde dilatata, pellicula oblonga, coriacea, separabili instructa. Hæc velamentum dorsale cancri (G. Dorippe) format.

11. CANCRISOCIA EXPANSA. Of a pale brownish color; base suboblong, slightly arcuated, with rounded, subtruncate extremities; margin crenulated; pellicle tough, brownish, concentrically striated, with a submarginal nucleus; diameter of the middle of the body half the length of the base, and two-thirds that of the oral disc; tentacula long, slender, tapering, shaded with blackish about the middle, arranged in two or three confluent rows around the margin; space between mouth and tentacula radiated with blackish; mouth greenish without, brown within. In a contracted state, body much flattened, mouth indicated by a depression at the centre. Found on the common *Dorippe* of the China seas, attached by the posterior legs of the animal.

EDWARDSIA, Quatref. Polypi sæpe non affixi, sed non proprie liberi. Subvermiformes, epidermide instructi; tentaculis paucis et brevibus.

12. EDWARDSIA COLLARIS. Elongated, truncated at base, covered with a dirty brownish epidermis, except at a broad white band just beneath the tentacula, marked with eight fusiform stripes of brown; tentacula small, slender, brownish, about 40 in number. Length 2 inches.
Hab. China.

13. EDWARDSIA BREVICORNIS. Oblong, tapering toward the rounded posterior extremity, pale brown, 20-lineate, and with 20 short dark brown tentacula, banded with white near their blunt extremities. Epidermis scarcely perceptible. Length 1 inch.
Hab. China.

14. EDWARDSIA CLAVATA. Club-shaped, broad above; base small; epidermis dark greenish, brownish below, leaving a narrow naked space below the tentacula, of a purplish-brown color; tentacula in two equal series, the inner ones erect, the outer horizontal; mouth and tentacula purplish-brown, streaked and banded with white. Length 2 inches.
Hab. Kikaisima.

15. Edwardsia rubricollum. Subclavate, attached to stones beneath the surface of the sand; body covered with a loose brownish epidermis except at a red band beneath the tentacula, the upper margin of which is tuberculated; mouth-disc pale yellow; mouth deep red; tentacula yellowish, stout, tapering to a point, about 40 in number, arranged in two rows; half as many in the inner as in the outer row. Length 4 inches.
Hab. China.

16. Edwardsia cretata. Body covered with a brownish epidermis, encrusted with sand; anterior extremity naked, striate, and striped with alternately broader and narrower streaks of white; tentacula slender, pointed, black, spotted with white along their inner sides, about 30 in number, the inner ones longest. Length 1 inch.
Hab. Japan.

TUNICATA.

17. Ascidia tubifera. Elongated, cylindrical, smooth, hyaline, pale greenish, attached at the small anterior extremity; branchial tube nearly as long as the body, with a trumpet-shaped aperture, 8-lobed, with 8 red ocelli and the same number of short cirri; anal tube half as long as the branchial, with a contracted aperture, 6-lobed and 6-ocellate; both apertures encircled by a thread of bright yellow. Length 2 inches.
Hab. China.

18. Ascidia calcata. Oblong, somewhat rectangular, flattened, papillose, dark-green; apertures small, sessile on 8- and 6-lobed prominences, encircled with darker green. Length 1¼ inch.
Hab. Japan.

SCHIZASCUS, n. g. Tunica exterior fissa; parte posteriore complanata, cavum alterius tamquam operculo claudente et siphones retractos celante. Aperturæ sexangulatæ.

19. Schizascus pellucidus. Ovate-triangular when contracted; test and opercular thick, hyaline; tubes short, flesh-colored, streaked with crimson; a few transparent tubular processes around the apertures. Length 1 inch.
Hab. China.

20. Schizascus papillosus. Subrectangular, transparent; test covered with small papillæ; apertures with salmon-colored ocelli at their angles. Length ¾ inch.
Hab. China.

21. Molgula labeculifera. Small, globular, encrusted with mud; tubes transparent, the branchial shortest; apertures 6- and 8-lobed; lobes pointed and covered with sordes at their extremities. Diameter ¾ inch.
Hab. China.

22. Cynthia satsumensis. Subglobular, smooth when young, corrugated and distorted with age, of a pale orange or flesh-color; tubes short, subconical, rounded; apertures 4-lobed, with deep red markings, the anal one-third the size of the branchial. Diameter 1 inch.
Hab. Japan.

23. Cynthia delicatula. Globular, nearly smooth, of a pale red color; tubes short, subcylindrical; the branchial one with four longitudinal, bluish-white stripes margined with dark red; apertures nearly equal in size, rounded in expansion, cross-shaped when closed; a red circle at the mouth of the branchial cavity. Diameter ¾ inch.
Hab. Tanegasima.

24. Cynthia ocellifera. Body rounded, coriaceous, of a pale red color with darker clouds; tubes large, rather produced, about equal in size, striped alternately with red and white toward their extremities; branchial aperture somewhat

flavis, illarum clava, femorumque basi piceis, sterno punctulato, postice subtiliter canaliculato. Long. ·35—·37.

San Francisco and San Diego. The fine punctuation is more distinct than in the next, with which this species agrees in the form of body and sculpture of the sternum; the latter in immature specimens is yellow.

6. H. s u b l æ v i s, elongato-ovalis antrorsum magis angustatus, convexus ater æneescens nitidus, omnium subtilissime punctulatus, antennis palpis pedibusque flavis, illarum clava femorumque basi piceo-nigris, sterno haud sulcato subtiliter punctulato. Long. ·38—·42.

Nebraska and Georgia. Differs from the next by the longer form of body, and by the very fine and indistinct punctuation of the upper surface.

7. H. g l a b e r, elongato-ovalis (mas antice magis, femina utrinque æqualiter angustatus) convexus ater æneescens, nitidus subtiliter punctulatus, antennarum basi palpisque flavis, pedibus nigris flavo-variegatis, sterno sulcato grosse punctato. Long. ·38—·42.

Herbst, Käfer, 7, 298; tab. 113, fig. 8.

Lake Superior, New York, Nebraska, Georgia. Differs from the next by the anterior part of the sternal elevation being coarsely punctured, and the punctures of the elytra being very fine and equal in size.

8. H. m i x t u s, elongato-ovalis, convexus, ater æneescens, subtiliter punctulatus, elytris punctis subtilibus intermixtis, antennarum basi palpisque flavis, pedibus flavo-variegatis, sterno antice punctulato, postice sulcato et grosse punctato. Long. ·35.

New York, not rare.

9. H. e l l i p t i c u s, latiusculus convexus, utrinque obtusus atro-olivaceus, subæneescens nitidus, subtilissime punctulatus, antennis basi palpisque flavis, pedibus (præcipue anticis) flavo-variegatis, sterno latiusculo ad apicem et postice punctato, postice breviter canaliculato. Long. ·4.

New Mexico and California. Broader than the others, and equally obtuse before and behind.

d.

10. H. s t r i o l a t u s, ovalis convexus, nigro-æneus nitidus subtiliter punctulatus, thorace margine laterali postice latiore flavo, elytris lateribus vittisque angustis pluribus (externa antice cum margine confluente,) antennis palpis pedibus sternoque flavis, hoc antice latiusculo grosse punctato, postice lævi canaliculato. Long. ·37.

Southern States, abundant. The discoidal yellow lines of the elytra are sometimes very indistinct. The prosternum is yellow, and the deep groove is not arrested at the anterior margin, but divides it, as in H. ovalis.

Hydrocharis Latr.

Although Erichson has placed this genus, which corresponds to Hydrophilus *Leach*, and Hydrous *Brullé*, *Mulsant*, as a section of the preceding, it appears to me that the greater size of the prosternum, and the absence of the metasternal spine ought to be considered with the differences in the mandibles as of generic value. With regard to the name to be applied to the genus, if admitted, there is more difficulty. Yet, as the name Hydrophilus, as established by Geoffroy, plainly belongs to the previous genus, and as Leach, in his anxiety to preserve traditions even when superseded by actual publication, applied the name Hydrous† *Linn.* to the previous genus, it is obvious that Mr. Brullé acted at least imprudently, in taking the name last mentioned for a genus so closely allied to the original Hydrous, as the one now under consideration.

It appears, however, from Agassiz' Nomenclator Zoologicus, that the name here adopted was proposed by Latreille in 1825, (Fam. Nat.), while Mr. Brullé appears to have limited the name Hydrous to this genus in 1834, the date of his "Histoire Nat. des Insectes," and thus to have been anticipated by Latreille.

1. H. l i n e a t u s, ater ovalis (femina utrinque obtusa) convexus, subtile punctulatus, capite thoraceque ad latera punctis perpaucis grossis notatis, hoc fovea utrinque obliqua antica discoidali impressa, elytris tenuiter, obsolete punctato-striatis punctisque grossis seriebus 4 irregularibus notatis, palpis rufo-piceis, femoribus intermediis grosse punctatis. Long. ·65.

One female, San Diego, California. The club of the antennæ is regular in form.

2. H. o b t u s a t u s, ater (femina ovalis utrinque obtusa, mas elongato-ovalis) convexus, subtile punctulatus, capite thoraceque ad latera punctis perpaucis grossis notatis, hoc lineola utrinque obliqua antica discoidali impressa, elytris obsolete tenuiter punctato-striatis, punctisque sat magnis seriebus 4 impressis, palpis rufis, femoribus intermediis subtiliter punctatis. Long. ·55—·62.

Hydrophilus obtusatus Say, Journ. Acad. Nat. Sc. 3, 200 (♀).

Hydrophilus cristus Say, Bost. Journ. Nat. Hist. 1, 170.

Middle and Southern States. The male is longer and less obtuse in form, and has the club of the antennæ irregular.

Philhydrus Solier.

This genus is not adopted by Erichson, who considers it as merely a section of Hydrobius: the very great difference however in the length and structure of the maxillary palpi, as well as the general appearance of the insects, induce me to believe that the separation is natural.

It is otherwise with the genus Helochares (formerly Helophilus) of Mr. Mulsant: it was separated from Philhydrus by the mesosternum being only very slightly carinate, and not furnished with the anterior compressed lamina seen in most species. Yet in examining the species of both Hydrobius and Philhydrus, I find such want of uniformity in the sternum, as to convince me that characters drawn from that portion of the body must be regarded as specific, or at most sectional in their value. On these principles the native species may be thus arranged.

A. Mesosternum simplex, vel vix carinatum.	(Helochares, Muls.)
a. Prosternum simplex	Sp. 1—2 1—3.
b. Prosternum medio carinatum;	Sp. 4.
B. Mesosternum antice alte carinatum.	(Philhydrus, Muls.)
c. Prosternum medio carinatum	Sp. 5—8.
d. Prosternum simplex	
a. mesosternum carina continua notatum	Sp. 9—11.
b. mesosternum carina antica laminiforma	Sp. 12—13.

a.

1. P. r o t u n d a t u s, subrotundatus convexus, ater nitidus dense punctulatus, thorace lateribus anguste rufo-testaceis, elytris seriebus punctorum solitis distinctis, postice obsoletissime striatis, stria suturali profunda ad medium abbreviata, margine postico indeterminate piceo, palpis rufis tarsis piceo-rufis. Long. ·27.

Hydrophilus rotundatus Say, Journ. Acad. Nat. Sc. 5, 188.

Pennsylvania Dr. Melsheimer. Resembles in form Hydrobius globosus, but besides the difference in the sculpture of the elytra, the thighs are pubescent, and without lustre except at the tip.

2. P f i m b r i a t u s, latior, ellipticus convexus piceo niger nitidus, dense punctulatus, thoracis lateribus anguste testaceis, elytris stria suturali ad medium abbreviata, punctorum seriebus solitis parum distinctis, versus apicem obsolete striolatis, margine fimbriata rufo-picea, palpis tarsisque rufis. Long. ·2.

Melsheimer, Proc. Acad. Nat. Sc. 2, 101.

Pennsylvania and New York; not rare.

3. P. l a c u s t r i s, longior, ellipticus convexus, supra piceus, nitidus subtiliter punctatus, palpis, capite macula utrinque antica testaceis, thoracis et elytrorum lateribus indeterminate piceo-testaceis, his stria suturali antice abbreviata, postice piceo fimbriatis; subtus niger, femoribus piceis, tibiis tarsisque rufo-piceis. Long. ·15.

One specimen found at Eagle Harbor, Lake Superior. Narrower than H. fimbriatus, with a broader and less defined yellow margin, and without any series of larger points on the elytra.

b.

4. P. maculicollis, ovalis modice convexus, nigro-piceus nitidus, capite thoraceque subtiliter punctatis, lateribus indeterminate piceis, epistomate late emarginato; elytris striis 10 profundis punctatis, interstitiis parum convexis, 5to ad striam 5tam punctorum maiorum serie notato, palpis rufis. Long. ·24.

Variat corpore supra testaceo thoracis disco nigro, femoribus piceis, tibiis tarsisque testaceis.

Helochares maculicollis Mulsant, Ann. Sc. Phys. Nat. Lyon, 7, 379.

Illinois Mr. Willcox; Louisiana, Mr. Sallé. The prosternum is distinctly though not strongly carinate: the mesosternum is very faintly elevated in the middle. The 10th stria of the elytra is distant from the margin, but the interval is very faintly longitudinally impressed: the margin is narrow and reflexed.

The variety in general appearance resembles Phaleria testacea *Say*.

c.

5. P. nebulosus, ellipticus convexus, subtiliter sæpe fere obsolete punctulatus, supra testaceus nitidus, capite nigro, macula magna antica utrinque pallida, elytris seriebus 4 punctorum solitis notatis, stria suturali tenui antice evanescente, tenuiter plus minusve fusco lineatis; subtus niger, pedibus piceo-testaceis femoribus sæpe fuscis. Long. ·14—·16.

Hydrophilus nebulosus Say, Long's Exped. 2, 277.

New York, Georgia, Lake Superior, Nebraska. The crest of the prosternum, as in the next two species of this division is acute, and gradually more elevated towards the tip. This species bears a strong resemblance to P. ochraceus, but the punctures are finer and less deep; the prosternal carina will however at once distinguish it.

6. P. pectoralis, ellipticus convexus, subtiliter punctulatus, supra testaceus nitidus, capite nigro-piceo, antice testaceo linea frontali media fusca, elytris seriebus 4 punctorum solitis, stria suturali antice abbreviata, subtus niger, tibiis tarsisque testaceis, femoribus fuscis. Long. ·11.

Colorado River, California: smaller than the preceding, and principally distinguished by the whole of the front being pale, with only a narrow fuscous line in the middle.

7. P. cristatus, ellipticus, longior convexus subtiliter punctulatus, supra piceus nitidus, capite nigro-piceo, clypei lateribus anguste testaceis, thoracis lateribus obliquis vix rotundatis et apice indeterminate sed anguste testaceis, elytris seriebus 4 solitis punctorum notatis, stria suturali antice abbreviata, lateribus et apice indeterminate testaceis, subtus niger, palpis tibiis tarsisque testaceis. Long. ·13.

One specimen from San Diego, California: besides the difference in the color of the head, this species is narrower than either of the two preceding, and the sides of the thorax are less rounded.

8. P. carinatus, ellipticus convexus piceo-niger nitidus, confertim subtiliter punctulatus, elytris seriebus 4 punctorum solitis distinctis, stria suturali antice abbreviata, ad apicem picescentibus, tarsis palpisque rufo-piceis: prosterno subæqualiter modice carinato. Long. ·2.

San Francisco and San Jose, California. This species has nearly the appearance of P. diffusus of the next division, but besides the differences in the sternum the sides of the elytra are uniformly declivous, with a very narrow reflexed margin, while in all the species of division d. they are slightly concave with a wider reflexed margin. In one specimen may be seen traces of very indistinct striæ on the posterior part of the elytra, but in the others no such are visible.

d—a.

9. P. diffusus, ovalis convexus nigro-piceus vel piceus nitidus, confertim subtiliter punctatus, capite antice thoracisque limbo pallidiore, elytris margine indeterminate testaceo, postice fimbriato, seriebus punctorum 4 solitis notatis, stria suturali antice abbreviata, palpis tibiis tarsisque piceo-testaceis. Long. ·17—·25.

Nebraska and California: the body is a little narrower in front, and less convex than in the preceding. The prosternum is not at all carinate, and the keel of the mesosternum is horizontal in its inferior outline, as in the other species of this division. The Californian specimens are smaller, a little broader posteriorly, and a little more convex than those from Nebraska, but I cannot observe any sufficiently definite difference to cause them to be regarded as another species. In pale specimens the head is blackish with anterior pale spots.

10. P. perplexus, longior ellipticus convexus, confertim subtiliter punctatus piceus, vel nigro-piceus nitidus, capitis lateribus antice, thoracis et elytrorum limbo laterali angusto rufescentibus, elytris seriebus punctorum 4 solitis, stria suturali antice abbreviata; palpis tibiis tarsisque sæpe testaceis, vel piceis. Long. ·17—·20.

New York, Illinois, Lake Superior, Nebraska. Very closely allied to the preceding but distinguished by the narrower and regularly elliptical form of body. In one specimen the anterior spots of the head, and the whole margin of the thorax are testaceous, the pale border of the elytra is fimbriated posteriorly: the abdomen is yellowish, with the middle brownish, and the feet are almost entirely yellowish. Color, however, is so variable in this genus, that it cannot be taken as characteristic, and recourse must be had to form and sculpture, which are sufficiently distinct, in all the species herein noted, to render their recognition a matter of very small difficulty.

11. P. ochraceus, ellipticus convexus, confertim subtiliter punctatus, nigro-piceus, piceus, vel supra testaceus, limbo omni et capite antice pallidiore, elytris postice dilute fimbriatis, seriebus solitis punctorum haud conspicuis, stria suturali antice abbreviata, pedibus aut fuscis aut testaceis. Long. ·13.

Melsheimer, Proc. Acad. Nat. 2, 101. (var. immat.)

Middle and Southern States: resembles P. nebulosus, but the punctures of the upper surface are more distinct, and the prosternum is not at all carinated.

d—b.

12. P. cinctus, ovalis magis convexus, nigro-piceus vel piceus, nitidus confertim subtiliter punctatus, capite macula utrinque antica, thoracis elytrorumque lateribus ferrugineo marginatis, his punctorum seriebus 4 solitis notatis, stria suturali antice abbreviata; palpis piceo-testaceis. Long. ·26.

Variat, corpore piceo-testaceo, capite supra et subtus obscuriore.

Hydrophilus cinctus Say, Long's Expedition, 2, 276.

Philhydrus limbalis Melsheimer, Proc. Acad. Nat. Sc. 2, 101.

Middle and Southern States and Nebraska: for a type I am indebted to Dr. Melsheimer. Almost as convex, but not so broad as P. rotundatus, and readily known by the mesosternum being dilated into a large quadrilateral vertical plate in front of the middle coxæ.

In answer to some questions regarding the difference between P. cinctus and limbalis Dr. Melsheimer writes as follows: "the latter is larger, more oval and less convex than the first; the colored margins are also broader and all the other characters more distinct, but notwithstanding these differences, I now consider them as different sexes." Say in his description does not mention the sutural stria, but I learn from Dr. Melsheimer that it is quite distinct.

13. P. bifidus, ellipticus modice convexus, nigro-piceus nitidus, confertim subtiliter punctatus, elytris striis 10 profundis notatis, internis antice obliteratis, suturali versus scutellum bifida; margine sulco longitudinali densius punctato: thoracis lateribus rufo-piceis, palpis tarsisque ferrugineis. Long. ·28.

Middle and Southern States: the four internal striæ of the elytra are gradually shorter anteriorly: the sutural one is bifid by the confluence of a small scutellar stria, but with the second is almost entirely obliterated on the anterior fifth of the elytra. The anterior dilated plate of the mesosternum is not quadrilateral as in the preceding, but triangular and acute as in Hydrobius, to some species of which it bears considerable resemblance, but may be distinguished by the long slender palpi.

In Fauna Bor. Am. (p. 120) Mr. Kirby cites the European P. marginellus and melanocephalus as occurring in North America: the descriptions however are not sufficiently characteristic to enable them to be referred with certainty to any of the species above described to whice they may belong.

HYDROBIUS Leach.

A. Antennæ 9-articulatæ.

1. H. tumidus, rotundato-ovalis valde convexus, æneo-ater nitidus confertim punctulatus, thorace lateribus parce punctato, elytris striis subtiliter punctatis haud impressis, stria suturali profunda antice obliterata, interstitiis alternatim punctis maioribus uniseriatim notatis: mesosterno lamina magna triangulari acuta antice perpendiculari armata. Long. ·33.

New York and Pennsylvania, rare. Not so globose as H. globosus, but equally convex: the different form of the mesosternal protuberance will at once distinguish it; but in addition to that character, the prosternum at tip is armed with a small acute tubercle.

2. H. globosus, rotundatus valde convexus, æneo-ater nitidus confertim punctulatus, thorace lateribus parce punctato, elytris striis subtiliter punctatis haud impressis, stria suturali profunda antice obliterata, interstitiis alternatim punctis maioribus uniseriatim notatis; mesosterno tuberculo magno pyramidato acuto armato. Long. ·30.

Hydrophilus globosus Say, Long's Expedition, 2, 276.

New York and Pennsylvania. The protuberance of the mesosternum is thick and pyramidal, with its posterior face flattened.

3. H. insculptus, ovalis modice convexus, piceo-niger nitidus confertim punctulatus, thorace latitudine plus sesqui latiore linea utrinque antica discoidea punctisque paucis ad latera notato, elytris striis profundis punctatis, internis antice subobsoletis, suturali antice bifida, interstitiis alternatim punctis maioribus notatis; mesosterno lamina triangulari acuta postice perpendiculari armato. Long. ·30.

One specimen from New York. Less convex and more oval than the next, which it closely resembles; the larger size of the mesosternal protuberance will distinguish it. The greatest breadth of the elytra is about two-fifths from the tip.

4. H. regularis, ellipticus convexus, piceo-niger nitidus confertim punctulatus, thorace latitudine duplo breviore linea utrinque antica discoidea punctisque paucis ad latera notato, elytris striis punctatis, internis antice subobsoletis, suturali antice bifida, interstitiis alternatim punctis maioribus notatis; mesosterno antice subcarinato, mucrone parvo subacuto ad medium armato, Long. ·34.

Vermont, Prof. Adams.

5. H. seriatus, ellipticus modice convexus, piceo-niger nitidus confertim punctulatus, thorace latitudine duplo breviore, linea utrinque antica discoidali, punctisque paucis ad latera notato, elytris striis punctatis, internis antice levioribus, suturali antice bifida, alternatim punctis maioribus in strias impressis: tibiis tarsisque sæpe rufo-piceis; mesosterno lamina parva triangulari armato. Long. ·28.

California, at San Francisco and at the Colorado river. The large punctures

of the elytra are placed upon the striæ, and not scattered on the interstices as on the two preceding species.

The European H. fuscipes is said by Kirby (Fauna Bor. Am. 119) and by Mannerheim (Bull. Mosc. 1853) to be found in the northern part of the continent. The descriptions will apply equally well to the three striate species above described, yet, on comparison with European specimens, they all seem to me to be sufficiently distinct. H. insculptus approaches them most nearly, but the thorax is not so short and is narrowed more obliquely towards the tip.

C. H. digestus, ellipticus convexus ater, nitidus, capite thoraceque sat dense punctatis, elytris confertim subseriatim punctatis stria suturali antice obliterata; tibiis vix spinulosis, mesosterno antice vix tuberculato, palpis rufo-piceis. Long. ·11.

Lake Superior and Niagara. Though the punctuation of the elytra is as in Laccobius, and the tibiæ appear to have no scattered spines, as in the other species of this genus, it would scarcely appear natural to separate this as a distinct genus. The antennæ and palpi appear entirely as in the other species.

B. Antennæ 8-articulatæ.

7 H. subcupreus, ellipticus, convexus, nigro-æneus, capite thoraceque subtilius, elytris distinctius punctatis, bis stria suturali ad basin evanescente, antennis piceis, basi palpisque rufis. Long. ·08—·10.

Hydrophilus subcupreus Say, Journ. Acad. Nat. Sc. 5, 189.

Cyclonotum subcupreum Lec. Agassiz' Lake Superior.

Middle States, Nebraska, Lake Superior, and Colorado River, California; common. Although in general appearance and sculpture this species resembles Hydrobius, the antennæ have but 8 joints, and are formed as in Laccobius agilis. The posterior tarsi appear to possess an indistinct row of ciliæ on their upper margin but are comparatively shorter and more slender. The middle and posterior tibiæ are furnished with some irregularly scattered spines. It is at first doubtful whether this species should be joined with Laccobius, or with Hydrobius (from which it seems to differ only by the number of joints in the antennæ), or whether a separate genus should be established for its reception. From Laccobius however, it differs in the sculpture of the ventral segments of the abdomen, and the form of the posterior trochanter, while in these characters it agrees entirely with Hydrobius.

In the smaller specimens the punctures of the elytra are sometimes less distinct towards the base. Specimens also occur in which the lateral margin of the thorax and the tips of the elytra are yellowish.

CYCLONOTUM Erichson.

1. C. cacti, latius ovale convexum, atrum nitidum subtiliter punctulatum, elytris punctis vix maioribus obsolete punctato-striatis, stria suturali pone medium distincta; prosterno integro carinato. Long. ·22.

San Diego, California, in putrid Opuntia. The antennæ are reddish, with the club dark-colored; the first joint, as in the next species, is long, being in fact nearly one-half the length of the entire antenna: Erichson has erroneously described (Käfer Mark. 213) it as being short, but the description given by Mulsant, (Coleopt. de France, Palpicornes, 148) is correct. The striæ of the elytra are very faint, and merely formed by rows of punctures which are scarcely larger than the fine punctures which cover the whole upper surface, and they vanish entirely towards the base of the elytra. The prosternum, though pointed posteriorly, reaches almost to the mesosternum: the carina is more prominent anteriorly.

2. C. estriatum, rotundato-ovale, convexum, atrum nitidum, punctulatum, elytris stria suturali nulla; prosterno brevissimo haud carinato: palpis antennisque rufis, his clava picea. Long. ·15.

Erichson, Bericht, &c., in Wiegm. Arch. 1845.
Hydrophilus extriatus Say, Bost. Jour. Nat. Hist. 1, 171.
Cyclonotum globulosum Mulsant, Ann. Sc. Phys. Nat. Lyon, 7, 167.
Louisiana, Messrs. Sallé & Wapler. The prosternum is very short, and vanishes between the coxæ of the anterior feet.

CERCYON Leach.

On account of the difference in form of the pro- and mesosternum, Mr. Mulsant has separated from this genus three which he names Pelosoma, Megasternum (properly Megalosternum) and Cryptopleurum. Erichson has expressed as his opinion that the characters upon which they were separated are insufficient, while Lacordaire, in the second volume of his most excellent work on Genera of Coleoptera, has recombined Pelosoma with Cercyon, but leaves Megasternum and Cryptopleurum distinct.

Having found in America representatives of all these groups, I am inclined to agree with the views expressed by Lacordaire.

My series of the common species of Cercyon is not sufficiently large to enable me to investigate the genus in a satisfactory manner; I will therefore postpone the description of new species, and the synonymy of those previously described; merely making known two species which are remarkable and easily recognized.

I may add as a contribution to future synonymy, that C. mundum *Mels.* is C. centrimaculatum, and that C. maculatum *Mels.* is C. anale, both European species mentioned by Erichson (Käfer Mark Brand.) as found in America. C. fimbriatum *Mannh.* described from Sitka, was found by me in California.

1. C. pubescens, rufo-testaceum, ovale, postice subattenuatum, punctulatum, subtiliter pubescens, capite obscuro, elytris striis 9 profundis integris subtiliter punctatis, interstitiis lævibus, alternatim postice altioribus; mesosterno lineari, prosterno modice carinato. Long. ·04.
Maryland, Dr. Zimmermann.

2. C. capillatum, ovale, convexum, nigrum nitidum, subtiliter parce cinereo-pubescens, capite thoraceque modice, elytris paulo parcius punctatis, his punctis paulo maioribus vix obsoletissime striatis, margine apicali, palpis pedibusque piceo-testaceis; prosterno alte carinato, mesosterno pentagono cum metasterno arcte connato. Long. ·08—·10.
San Diego, in putrid cactus, and also in the valley of the Gila. The lines of of punctures of the elytra can hardly be seen, but near the margin and behind the middle are more or less faint traces of striæ. The mesosternum is not wider than long, and the anterior angle is quite sharp. This species belongs to Pelosoma *Muls.*

MEGALOSTERNUM Muls.

1. M. costatum, latius ovale, postice subacutum, modice convexum, piceum opacum, parce flavo-pubescens, capite thoraceque punctatissimis, hoc canaliculato, utrinque obsolete tricostato, marginato, elytris profunde crenato-sulcatis, interstitiis costatis, 2, 4, 6, et 8vo postice altioribus, pygidio triangulari devexo nudo, confertim punctato. Long. ·07.
One specimen found in York county, Pennsylvania, was given me by Dr. Melsheimer. The palpi are precisely as in Cercyon; the sternum exactly like the figure given by Mulsant of M. boletophagum: the naked deflexed pygidium is an anomaly which I have not seen in any species of this family, and with the peculiar sculpture seems to indicate an approach to Histeroid genera like Onthophilus. Other specimens, when procured, will enable a more full examination to be made, and will perhaps render necessary the establishment of a new genus. The anterior tibiæ (as far as I can examine them) do not appear to be emarginate, as in M. boletophagum. The elevated lines of the thorax are quite indistinct, except the one nearest the margin, which is entire and quite obvious.
An allied but much smaller species, without elevated lines on the thorax and

with the furrows of the elytra less deep and less crenate was found by me at Panama: in the only specimen left, the pygidium is entirely covered by the elytra, as in other Cercyons.

CRYPTOPLEURUM Muls.

1. C. v a g a n s brevius ovatum, postice acutum, convexum, nigrum subnitidum, subtiliter flavo-pubescens, confertim punctulatum, elytris profunde striatis, striis punctatis, postice profundioribus interstitiis externis et versus apicem convexioribus, elytrorum apice, palpis pedibusque testaceis. Long. ·07.

One specimen, Eagle Harbor, Lake Superior.

Descriptions of some of the new Marine Invertebrata from the Chinese and Japanese Seas. By WM. STIMPSON, *Zoologist to the U. S. Surveying Expedition to North Pacific, Japan Seas, etc., Lt. John Rodgers, Commander.*

(Communicated by the Smithsonian Institution.)

POLYPI.

1. ANTHELIA LINEATA. Polypes elongated, slightly tapering towards the mouth, pale brownish with eight longitudinal lead colored stripes; tentacula bright blue, half as long as the body, with a single series of oblong, somewhat irregular papillæ. Length of a polype 1 inch.

Hab. China.

2. CORNULARIA AURANTIACA. Large, branching, pale orange: tubes straight, subcylindrical, (clavate when young); polypes transparent, with a few short linear spiculæ on the sides; stomach crimson; tentacula with a single series of elongated, tuberculated papillæ. Height 2 inches.

Hab. China.

3. ALCYONIUM AGARICUM. Mushroom-shaped, upper surface only polypiferous; pedicel central, one-third as thick as the disc is broad; disc orbicular, convex, margin entire, revolute; polypi rather large, three-tenths of an inch long and one-eighth of an inch distant, the surface between them covered with minute dots; disc above bluish-grey, polypes lighter, with still paler tentacula; inferior surface and pedicel dark cream-colored. Diameter ½ inch.

Hab. Japan.

4. NEPHTHYA COCCINEA. Lobulose, deep crimson: spiculæ crowded and irregularly projecting around the bases of the polypes, which are hyaline, with triangular, papillate tentacles. Beneath each tentaculum in the skin of the polype are two rows of minute, linear, crimson spiculæ, converging toward each other and forming a succession of V-shaped markings.

Hab. China.

5. VERETILLUM CLAVATUM. Variegated, punctate with orange and spotted with brown; foot white, with a pointed extremity; polypes large, the tentacula long and slender, their papillæ oblong; surface of the body between the polypes irregularly papillose. Length 2 inches.

Hab. China.

6. ACTINIA RADIATA. Small, smooth, oblong, pale brown, found attached to slender univalves; when contracted, depressed, radiated with gradually widening streaks of white; when expanded, disc narrower than the base, spotted with flake-white around the mouth; tentacula spotted with dark brown and white, tapering, pointed, arranged in an alternating series near the margin. Length ¼ inch.

Hab. Japan.

7. ACTINIA NIGROPUNCTATA. Subcylindrical, smooth, pale orange, base somewhat expanded; body encircled by two lines of distant black punctæ, ten in each line, alternating with the others; tentacula rather numerous, long, pointed, dark

at base; those indicating the antero-posterior diameter larger than the others, flake-white at base. Diameter ¾ inch.
Hab. Ousima.

8. ACTINIA INORNATA. Body papillose, papillæ oval, not very numerous; tentacula long, crowded in two or three rows; sulcus of the mouth indicated by protuberances at the margin; space between mouth and tentacula rather broad; color dark olive, paler above, darkest in a circle around the mouth. Height two inches.
Hab. China.

9. ACTINIA MULTICOLOR. Subcylindrical, brownish, with large purple papillæ and ten whitish stripes; a smooth band just beneath the tentacula, crowded with vertical crimson lines; mouth large, flesh-colored, with a deep longitudinal sulcus; tentacula also flesh-colored, thick, short, suddenly tapering to a blunt point, rather few in number, crowded together in two rows between the mouth and the margin. Height 1 inch.
Hab. China.

10. ACTINIA NAPENSIS. Smooth, lineated, olivaceous, greenish above and brownish below; upper margin crenulated; disc not broader than the middle of the body; tentacula placed in two rows near the margin, rather stout, pointed, dark-greenish, trimaculate with white on their inner sides; mouth protuberant, much lobed, spotted with white without and streaked with yellow within. Attached to stones beneath the sand. Height 1 inch.
Hab. Loo Choo.

CANCRISOCIA, n. g. Tentacula simplicia elongata, omnino retractilia. Basis valde dilatata, pellicula oblonga, coriacea, separabili instructa. Hæc velamentum dorsale cancri (G. Dorippe) format.

11. CANCRISOCIA EXPANSA. Of a pale brownish color; base suboblong, slightly arcuated, with rounded, subtruncate extremities; margin crenulated; pellicle tough, brownish, concentrically striated, with a submarginal nucleus; diameter of the middle of the body half the length of the base, and two-thirds that of the oral disc; tentacula long, slender, tapering, shaded with blackish about the middle, arranged in two or three confluent rows around the margin; space between mouth and tentacula radiated with blackish; mouth greenish without, brown within. In a contracted state, body much flattened, mouth indicated by a depression at the centre. Found on the common *Dorippe* of the China seas, attached by the posterior legs of the animal.

EDWARDSIA, Quatref. Polypi sæpe non affixi, sed non proprie liberi. Subvermiformes, epidermide instructi; tentaculis paucis et brevibus.

12. EDWARDSIA COLLARIS. Elongated, truncated at base, covered with a dirty brownish epidermis, except at a broad white band just beneath the tentacula, marked with eight fusiform stripes of brown; tentacula small, slender, brownish, about 40 in number. Length 2 inches.
Hab. China.

13. EDWARDSIA BREVICORNIS. Oblong, tapering toward the rounded posterior extremity, pale brown, 20-lineate, and with 20 short dark brown tentacula, banded with white near their blunt extremities. Epidermis scarcely perceptible. Length 1 inch.
Hab. China.

14. EDWARDSIA CLAVATA. Club-shaped, broad above; base small; epidermis dark greenish, brownish below, leaving a narrow naked space below the tentacula, of a purplish-brown color; tentacula in two equal series, the inner ones erect, the outer horizontal; mouth and tentacula purplish-brown, streaked and banded with white. Length 2 inches.
Hab. Kikaisima.

15. Edwardsia rubricollum. Subclavate, attached to stones beneath the surface of the sand; body covered with a loose brownish epidermis except at a red band beneath the tentacula, the upper margin of which is tuberculated; mouth-disc pale yellow; mouth deep red; tentacula yellowish, stout, tapering to a point, about 40 in number, arranged in two rows; half as many in the inner as in the outer row. Length 4 inches.
Hab. China.

16. Edwardsia cretata. Body covered with a brownish epidermis, encrusted with sand; anterior extremity naked, striate, and striped with alternately broader and narrower streaks of white; tentacula slender, pointed, black, spotted with white along their inner sides, about 30 in number, the inner ones longest. Length 1 inch.
Hab. Japan.

TUNICATA.

17. Ascidia tubifera. Elongated, cylindrical, smooth, hyaline, pale greenish, attached at the small anterior extremity; branchial tube nearly as long as the body, with a trumpet-shaped aperture, 8-lobed, with 8 red ocelli and the same number of short cirri; anal tube half as long as the branchial, with a contracted aperture, 6-lobed and 6-ocellate; both apertures encircled by a thread of bright yellow. Length 2 inches.
Hab. China.

18. Ascidia calcata. Oblong, somewhat rectangular, flattened, papillose, dark-green; apertures small, sessile on 8- and 6-lobed prominences, encircled with darker green. Length 1¼ inch.
Hab. Japan.

SCHIZASCUS, n. g. Tunica exterior fissa; parte posteriore complanata, cavum alterius tamquam operculo claudente et siphones retractos celante. Aperturæ sexangulatæ.

19. Schizascus pellucidus. Ovate-triangular when contracted; test and opercular thick, hyaline; tubes short, flesh-colored, streaked with crimson; a few transparent tubular processes around the apertures. Length 1 inch.
Hab. China.

20. Schizascus papillosus. Subrectangular, transparent; test covered with small papillæ; apertures with salmon-colored ocelli at their angles. Length ¾ inch.
Hab. China.

21. Molgula labeculifera. Small, globular, encrusted with mud; tubes transparent, the branchial shortest; apertures 6- and 8-lobed; lobes pointed and covered with sordes at their extremities. Diameter ¾ inch.
Hab. China.

22. Cynthia satsumensis. Subglobular, smooth when young, corrugated and distorted with age, of a pale orange or flesh-color; tubes short, subconical, rounded; apertures 4-lobed, with deep red markings, the anal one-third the size of the branchial. Diameter 1 inch.
Hab. Japan.

23. Cynthia delicatula. Globular, nearly smooth, of a pale red color; tubes short, subcylindrical; the branchial one with four longitudinal, bluish-white stripes margined with dark red; apertures nearly equal in size, rounded in expansion, cross-shaped when closed; a red circle at the mouth of the branchial cavity. Diameter ¾ inch.
Hab. Tanegasima.

24. Cynthia ocellifera. Body rounded, coriaceous, of a pale red color with darker clouds; tubes large, rather produced, about equal in size, striped alternately with red and white toward their extremities; branchial aperture somewhat

trumpet-shaped, with four inconspicuous red ocelli at the margin. Length 1 inch.
Hab. China.

25. CYNTHIA GEMMATA. Free, encrusted with sand and shells, compressed, rounded; tubes nearly equal in size, short, slender, tapering, flattened, bright yellow, with four longitudinal crimson stripes corresponding to the angles of the small, lozenge-shaped apertures. Diameter ¾ inch.
Hab. China.

26. CYNTHIA ARANEOSA. Ovate, or subglobular, of a pale orange color, surface divided into slightly prominent, irregular, polygonal spaces, separated by an irregular reticulation of crimson lines; tubes short, lineated and shaded with red, the branchial longest, the anal conical; apertures nearly circular when expanded. Length 1 inch.
Hab. China.

GASTEROPODA.

27. CORIOCELLA PUNCTATA. Oblong-oval, gibbous, hyaline, everywhere covered with flake-white punctæ; mantle smooth, covered with small circular clear spots, slit and folded at the anterior margin, forming a siphon; head flattened, quadrate, projecting a little beyond the margin of the mantle; tentacula linear, very long and slender, having the eyes sessile at their external bases; foot somewhat longer than the mantle, truncate and bi-marginate in front, pointed behind. Length ¾ inch.
Hab. Ousima.

28. CORIOCELLA TUBEROSA. Orbicular; mantle thick, cartilaginous, with numerous irregular protuberances, four of which are large and prominent; siphon oblong, conical, projecting forward; head small; tentacula stout, of moderate length; foot much shorter than the mantle. Color pale brownish, spotted beneath with sulphur-yellow. Length 2 inches.
Hab. China.

29. APLYSIA LÆVIGATA. Smooth, convex, oblong, somewhat produced anteriorly; lobes of the mantle rather short; siphon conical, foot with a blunt posterior termination; dorsal tentacula cylindrical, orals dilated at their extremities; color brownish above, sides with small dark grey spots and a few patches of white punctæ; head and foot green. Shell suboblong, very thin, membranaceous, of a pale horn-color; arcuated incision short but deep; summit triangular, small, thick and callous. Length 2 inches.
Hab. Ousima.

30. NOTARCHUS CIRROSUS. Oblong, back rounded; foot short and pointed behind, somewhat acuminate; body covered with numerous rather long appendages, much ramified on the back, but mostly simple on the head and tentacula; dorsal tentacula short, tapering, with the upper half slit; orals large. Color bluish-grey, sprinkled with black dots; the appendages edged with sulphur-yellow; a few clear green circular spots in different parts of the body. Length 3 inches.
Hab. China.

31. NOTARCHUS LINEOLATUS. Oblong-ovate, rather produced before, short and pointed behind; a few small, scattered, ramose appendages on the back and sides; color greenish, with minute, crowded, longitudinal black lines; a few small round nucleated spots on the sides; tentacles slender, the dorsal ones very long; eyes conspicuous, situated at a considerable distance in front of the dorsal tentacles. Length 2 inches.
Hab. Loo Choo.

32. PLACOBRANCHUS GUTTATUS. Depressed, ovate; head and tentacula very large; eyes small, placed together on a mammilla between and behind the tentacula; color dark olive, front brownish, mantle covered with circular greenish

spots, and blotched with flake-white along the edges. Within, branchial striæ prominent, of a dark green color. Length 1 inch.
Hab. Loo Choo.

33. Eolis humilis. Rather slender, wine-yellow; branchiæ dark brownish-grey, with pale yellowish tips, arranged in six clusters, the first two of which are biserial; dorsal tentacula serrated, orals long; anterior angles of the foot greatly produced. Length 1 inch.
Hab. China.

GYMNODORIS, n. g. Limaciformis, lævis. Polyceræ affinis, sed appendicibus branchiarum veloque carens, diversa. Branchiæ etiam simplices.

34. Gymnodoris maculata. Elongated, obtusely rounded before, tapering posteriorly to a slender pointed extremity; body smooth, translucent, of a pale brownish color, spotted with bright yellow; a ring of flake-white around the base of the branchiæ. Tentacula short, with eight oblique, dark brown laminæ; branchiæ consisting of nine slender, transparent, unbranched leaflets, with blunt, rounded, bright yellow extremities. Length ¾ inch.
Hab. Loo Choo.

35. Polycera? ramulosa. Large, higher than broad, swollen at the middle; back with a row of small branching processes along each side, those opposite the branchiæ bulbose; head large, rounded above, subtruncate; veil separated as far as the tentacula, with a pectinated margin; tentacula clavate, finely 25-laminate; branchiæ small, ramose, with five principal trunks; color greenish, with blackish patches; a few orange dots on the sides. Length 2 inches.
Hab. China.

36. Idalia tentaculata. Very small, suboblong, pointed behind; having two large frontal cirri, and sixteen lateral ones, eight on each side, the posterior ones bifurcate; head produced at the sides; tentacula very large, clavate; branchiæ consisting of four thick tentaculiform processes, dentated along the inner sides, in front of which on the middle of the back arises a single, very long cirriform appendage; color pale wine-yellow, with brownish spots along each side of the flake-white median line; tentacula and branchiæ chestnut-brown. Length ⅛ inch.
Hab. China.

HEMIDORIS, n. g. Pallium postice adnatum. Reliqua ut in Doridibus.

37. Hemidoris cœrulleata. Elongated-ovate, broad in front, convex along the middle and depressed at the sides; foot concealed by the mantle except posteriorly where they coalesce, the foot being produced for some distance beyond and tapering to a point; mantle smooth, light-blue, margined with yellow; dorsal tentacula 10-laminate, dark reddish-brown; orals oblong; branchiæ consisting of nine slender, simply pinnate leaflets of a reddish color. Length ¼ inch.
Hab. China.

38. Doris indurata. Ovate, broadest posteriorly; mantle covered with small hard tubercles, somewhat distantly arranged in quincunx; tentacula thick, pedunculate, 12-laminate; branchiæ with five well-branched plumes; head very small, foot narrow in front and broadly rounded behind; color lemon-yellow with flake white spots; branchiæ dark orange. Length 1 inch.
Hab. China.

39. Doris gibberosa. Thick, slightly broadest before; tubercles of the mantle hard, rugose, very large along the middle of the back; foot produced beyond the mantle behind; tentacula somewhat elongated, finely laminate, issuing from a pair of the larger tubercles; branchiæ large, frondose, of five plumes; color dark yellowish, tubercles purplish-brown, tentacula brownish-grey with white tips; branchiæ lemon-yellow. Length 1¼ inch.
Hab. China.

40. DORIS OLIVACEA. Large, thick and strong, rugose, half as broad as long, dark olivaceous; mantle with large greenish tubercles, largest about the middle; dorsal tentacula smoothish, with conical 20-laminate extremities; orals oblong; branchial plumes largest. Length 3 inches.
Hab. Loo Choo.

41. DORIS ROGERSII. Convex, oval, of a pale-brown color with darker clouds; mantle covered with minute crowded, slender papillæ, like short hairs; foot not reaching the edge of the mantle; tentacula short, blunt, broadly laminate, of a purplish-brown color; branchiæ formed of nine small colorless leaflets projecting but little beyond the margin of the cavity in which they are expanded; anal papilla large, black. Length ¾ inch.
Hab. Kikaisima.

42. DORIS AREOLATA. Small, convex, mantle tuberculated; branchiæ consisting of eight short leaflets, the superior one much the largest. Colors: mantle bright green, with a rectangle defined in purple between the tentacula and the branchiæ, from the corners of which yellow lines extend to the margin; foot, branchiæ and tentacula of a pale lemon color. Length ¾ inch.
Hab. Boninsima.

43. DORIS NIGRA. Small, subelliptic, somewhat elongated, depressed; mantle smooth, the foot produced beyond it; tentacula obliquely 9-laminated; branchial cluster small but produced and nearly erect, with eight simple pinnate leaflets. Color variable, usually black, always very dark; mantle often dotted with white and margined with red; tentacula always tipped with white. Length ½ inch.
Hab. Loo Choo and Kikaisima.

44. DORIS LATENS. Oval, mantle covered with minute tubercles; foot produced a little beyond the mantle; dorsal tentacula finely 20-laminate; orals slender; branchiæ with six slender pinnate plumes, contractile into a large cavity, the lateral ones longest but not reaching the margin of the body; anal tube with a white star-like extremity. Colors: body everywhere variegated with black, brown and white, and punctate above with flake white. Length 1 inch.
Hab. Loo Choo.

45. ONCHIS FRUTICOSA. Oval, thick, of a dark greenish color mottled with yellowish; mantle covered with small papillæ of different sizes, the larger ones with 1-3 oculiform black dots at their summits, those on the posterior half of the body elongated and covered with styliform branches; the mouth-disc large, bilobate; tentacula oblong, with the retractile eyes at their summit; foot much shorter than the mantle, of a pale yellowish color. Length 1 inch.
Hab. Kikaisima.

TURBELLARIA.

46. EURYLEPTA INTERRUPTA. Oval, of a pale brown color, with a median line of black blotches; margin ornamented with brown, orange, black and white, concentrically arranged, and interrupted at short intervals all around, except in front; tentacula prominent, marginal; ocelli cervical, in two lunate patches, convex forward, one behind the other. Length ¾ inch.
Hab. Loo Choo.

47. EURYLEPTA GUTTATO-MARGINATA. Oblong-ovate, slightly broadest behind, white, with a series of purple spots along the margin; tentacula short; ocelli few in number, in a single cluster on the neck behind the tentacula. Length ½ inch.
Hab. Loo Choo.

48. EURYLEPTA FULMINATA. Oblong-oval, dark greenish, with oblique streaks of bright red on each side of the back, at the middle of which they form acute angles; tentacula broad, close together at the anterior extremity; ocelli in a single cluster on a minute oval papilla at the neck. Length 1¼ inches.
Hab. Loo Choo.

49. STYLOCHUS CORNICULATUS. Oblong, with broadly rounded extremities, subtranslucent, mottled with yellowish-brown; tentacula prominent, pyramidal, triangular, with the minute ocelli crowded along the whole length of their exterior faces; no spot on the body; a clear, pellucid, circular spot between the tentacula. Length 2 inches.
Hab. China.

50. STYLOCHUS RETICULATUS. Broad, ovate, of a pale brown color, with darker clouds; surface reticulated with strings of black punctæ; tentacula situated in a clear space at the anterior fourth of the length of the body; ocelli in four clusters, two on the tentacula at their bases in front, and two oblique ones anterior to and between the tentacula. Length 2 inches.
Hab. Loo Choo.

51. LEPTOPLANA SPARSA. Oblong, subtruncate before, of a pale brown color; ocelli very minute, scattered along the margin of the anterior half of the body, and forming three clusters on the head, one large central and two very small lateral ones. Length 1 inch.
Hab. Kikaisima.

52. LEPTOPLANA ACUTA. Oblong, pointed at both extremities, pale grey, mottled with brownish; ocelli few, minute, in two lunate clusters convex outwards. Length ½ inch.
Hab. China.

53. LEPTOPLANA OBSCURA. Elongated oval, dark-brownish with a tint of lilac, often maculate, paler along the middle of the back; ocelli few, minute and inconspicuous, in the two parallel linear clusters at the middle of the head, and scattered along the anterior margin. Length ½ inch.
Hab. China.

54. LEPTOPLANA TRULLÆFORMIS. Elongated, trowel-shaped, broadest at the head, of a pale brown color; ocelli situated in a clear space anteriorly, forming two conspicuous diverging clusters, and four small nebular ones, placed before and behind these, and confluent with them. Length ¾ inch.
Hab. China.

55. LEPTOPLANA COLLARIS. Elongated, truncate in front, tapering and rounded behind; ocelli in two elongated clusters, confluent anteriorly and diverging from each other posteriorly; color pale greyish with two dark-brown longitudinal lines; a transverse white band just behind the eye clusters. Length ½ inch.
Hab. Loo Choo.

56. NAREDA SERPENTINA. Elongated, somewhat flattened, brownish; head broader than the body, emarginate in front; neck well contracted; eyes two, rather large, bilobate, placed one on each side at the middle of the head. Length 2½ inches.
Hab. Loo Choo.

57. MECKELIA PIPERATA. Greatly elongated, depressed and broadest at the middle; color light yellowish, sprinkled with black in transverse clouds; margin white; head narrower than the body, white in front of two large black spots near the middle; lateral fissures extending obliquely upward to the back, and separated anteriorly from the wide transverse mouth by a bright crimson partition; genital aperture placed anteriorly, before the middle of the head. Length 8 inches.
Hab. Kikaisima.

58. MECKELIA CINGULATA. Slender, reddish-brown, with distant white annulations regularly arranged, the first girding the middle of the head, which is also margined with white; head oblong, truncate and emarginate in front; neck distinct; genital aperture just before neck below. Length 4 inches.
Hab. China.

59. MECKELIA ALBO-VITTATA. Slender, grass-green; head truncated, a little narrower than the body, margined with white and crossed by a white band at a point about the middle of the lateral fissures. Length 3 inches.
Hab. Loo Choo.

60. MECKELIA SINENSIS. Subcylindrical, head elongated, narrowing to a small truncate extremity; neck well defined; color of body dark reddish-brown, head sprinkled with minute patches of the same. Length 1½ inches.
Hab. China.

61. MECKELIA RUBELLA. Short, broad posteriorly, of a pale salmon color; head very small, pointed; neck slightly contracted; lateral slits of great length, extending far behind the neck. Length 2 inches.
Hab. China.

62. MECKELIA NIGRA. Thick, narrowed and truncate anteriorly, flattened behind; color black; head comparatively large, elongated, with the lateral slits extending as far as the slightly contracted neck; mouth white. Length 3 inches.
Hab. China.

AMPHIPODA.

63. PHOXUS GENICULATUS. Rostrum very long, pointed; eyes white; superior antennæ biflagellate, flagellæ equal, 10-articulate; members with simple hairs; third and fourth articles of the third and fourth pairs of legs dilated; rami of the posterior caudal styles unequal, the outer ones long, three-jointed; color white. Length ¼ inch.
Hab. Japan.

64. PHOXUS OBTUSUS. Rostrum short concave, its extremity rounded; appendicula of the superior antennæ very short; legs of the first four pairs slender; third and fourth pairs with unexpanded joints, and spinose extremities; hairs simple, except on the fifth pair of legs, where they are long and plumose; last pair of caudal styles with flattened, lanceolate rami, the external ones longest; caudal extremity with two lamelliform processes, emarginate at the extremities. Length ¼ inch.
Hab. Japan.

65. DERCOTHOE? PRODUCTUS. Ophthalamic lobes of head much produced, bearing the eyes at their rounded extremities; antennæ of equal length, one-half that of the body, with few long hairs: flagella with ten much elongated articulations; hands four, subequal, oblong; posterior caudal stylets with short rami, the outer ones uniform, the inner minute, spine-like; caudal scale subcordiform, pointed behind. Length ⅜ inch.
Hab. Tanegasima.

66. AMPHITHOE FILIGERA. Body thick about the middle, compressed towards the extremities; a few setiferous points on the posterior abdominal segments; epimerals large; eyes rounded, bright vermillion; antennæ very slender, the superior ones nearly as long as the body, their hair-like, 40-articulate flagella constituting four-fifths of their length; hands in the male subequal, of moderate size, very hairy, deeply notched below for the reception of the closed finger; caudal stylets of the last pair short, ovate or heart-shaped, with small papilliform rami. Color, olive punctate; epimerals greenish. Length ½ inch.
Hab. Loo Choo.

67. GAMMARUS FLABELLIFER. Slender, smooth posteriorly; superior antennæ half as long as the body, flagella 20-articulate, appendicula 5-articulate; hands oblong-elliptic; with a fusiform area below surrounded by short setæ; eyes small, round, black; rami of posterior pair of caudal stylets long, lamelliform, elliptical, equal spreading like a fan. Length ½ inch.
Hab. Loo Choo.

68. GAMMARUS TENUICORNIS. Compressed, posterior segments of the abdomen

with two or three short setæ on the back; superior antennæ as long as the body, with 22-articulate flagella, appendicula triarticulate; eyes small, circular; hands hairy, second pair largest; caudal stylets of the first and second pairs with very slender, smooth rami; posterior pair with the external ramus long, thick, styliform, setose, the internal one extremely minute; terminal processes of considerable length, curved, each surmounted by a long spinule. Color blackish-olive. Length ¼ inch.
Hab. Loo Choo.

69. LEUCOTHOE STYLIFERA. Antennæ of equal length, one fifth that of the body; flagella of the very slender inferior ones triarticulate; eyes small, subreniform, broadest above, dark-red; epimerals rather large; especially the fourth pair; hands as in *L. furina, grandimanus*, etc.; coxæ with wide expansions, somewhat produced inferiorly; caudal stylets nearly smooth, sharp, much elongated, last pair much exceeding the first, and with large peduncles. Color pale orange. Length ¼ inch.
Hab. Japan.

70. ALLORCHESTES RUBRICORNIS. Smooth, compressed; eyes suboval, black, widening below; inferior antennæ two-thirds the length of the body, with 25-articulate flagella, articulations nearly as broad as long, with few short hairs; superior antennæ two thirds as long as the inferior ones, flagella 13-articulate: large hands of male nearly smooth below; hands of female slender, with fingers of one-fourth their length; posterior pair of caudal stylets conical. Color pale olive; antennæ always red. Length ⅜ inch.
Hab. Ousima, Boninsima.

71. ALLORCHESTES PENICILLATA. Penultimate article and first four segments of the inferior antennæ furnished with spreading pencils or plumes of long setæ; first pair of caudal stylets with a long curved spine, arising near the bases of the rami and nearly equalling them in length; epimerals, legs, etc., of medium size, as in the preceding species. Color greenish. Length ¼ inch.
Hab. Ousima.

72. ALLORCHESTES JAPONICA. Smooth posteriorly; inferior antennæ stout, one-fourth as long as the body, and twice as long as the superior ones; flagella of both with twelve oblong articulations, with extremely short, numerous setæ. Head rather small; eyes large, black, very broad oval, closely approaching each other above; large hands of male notched below; posterior pair of caudal stylets very minute; a prominent contraction at the fourth abdominal segment above. Color olive; epimerals and legs shaded with red. Length ¼ inch.
Hab. Japan.

73. ORCHESTIA POLLICIFERA. *Male* with stout inferior antennæ, the flagella of which form one third their length; first pair of legs small, chelate, with the penult and antepenult articles produced below into thumb-like processes; 2nd pair with ovate hands of moderate size. *Female* with slender inferior antennæ, flagella 12-articulate; superior ones as long as the first two joints of the others; legs of the first pair simple; second pair with small hands, having a minute lateral finger. Color pale brownish; eyes rather small, round, black. Caudal stylets short, rami sub-conical. Length three-fifths of an inch.
Hab. Loo Choo.

74. CROPHIUM CONTRACTUM. Antennæ equal in length, which is one-fourth that of the body; superior ones with 4-articulate flagella; inferior ones very thick, with minute terminal articles; posterior pair of legs rather long, with long plumose setæ along the edges of the coxæ. Color yellowish, eyes black. Length ¼ inch.
Hab. Japan.

75. CAPRELLA LUCTATOR. Smooth, rather slender; first article of superior antennæ thickened, one-third as long as the second, which equals the third; fla-

gellum 16-articulate; hands of the second pair large, tridentate below, teeth unequal; posterior legs robust, with large unidentate hands. Length 1 inch.
Hab. Janegasima.

76. CAPRELLA GRACILIS. Slender, smooth, with a slender curved rostrum; second article of superior antennæ as long as the first and third together; posterior legs very slender, the seventh pair twice as long as the fifth. Length ¼ inch.
Hab. Japan.

The Monthly Report of the Corresponding Secretary was read and adopted.

ELECTION.

Lieut. Madison Rush, U. S. N.; Dr. J. J. Woodward, and Mr. Samuel Smyth, of Philadelphia, were elected *Members*.

Odontographie. Verg'eichende Darstellung des Zahnsystemes der lebenden und fossilen Wirbelthiere. Von C. G. Giebel. (conclusion.) From Dr. Wilson.

Journal of the Franklin Institute, Feb., 1855. From the same.

DONATIONS TO MUSEUM

In March and April, 1855.

March 6th.

Specimens of Coluber punctatus, and C. eximius, from Philadelphia. Presented by Dr. Watson.

Ocipode arenaria, from Beesley's Point, N. J. From Mr. Chas. C. Ashmead.

Selenite, from Lockport, N. Y. From Mr. Edward Miller.

Trachynotus spinosus ?, from Beesley's Point. From Mr. S. Ashmead.

Mounted specimen of Procyon lotor. From Dr. Leidy.

April 3d.

Thirty-six specimens, twenty-five species of fishes, obtained in the market at Rio de Janeiro, and one species Chœtodon, taken at sea off Brazil; five specimens of Peneus setiferus, from Brazil; two do. Cerataspis monstruosis, do.; six do. Mytilus, do.; two do. Ostrea. Presented by Dr. W. S. W. Ruschenberger and Thos. J. Turner, U. S. N.

Fourteen specimens, twelve species of fishes, Mississippi River; and three specimens of Emys picta. In exchange from the Smithsonian Institution.

One specimen Asterias, from the Mediterranean. Presented by Dr. J. C. Fisher.

One specimen Astrea ——?; Larvæ of Phyllophaga, from Rhode Island; Semibituminous coal, from Broad Top Mountain. Presented by S. Powel.

Uranite, from the banks of the Schuylkill, Philadelphia. Presented by Theod. D. Rand, of Philadelphia.

April 10th.

Fruit of Abies communis. From Dr. Fisher.

A collection of Carboniferous Fossils, from Rush Creek, near New Harmony, Indiana, and a collection of Fresh-water Shells, from the Wabash River, near New Harmony, Ind. Presented by James Sampson, Esq.

April 17th.

Two specimens Meles taxus, from Greenland; one do. Phoca barbata, do.; one do. Phoca grœnlandica, do.; one cranium of Cervus elaphus, do.; one specimen of Tarandus rangifer, do.; fifty-five bottles Invertebrate animals, do.; one specimen Canis antarcticus, from Falkland Islands. Presented by Dr. Thos. B. Wilson.

One specimen of Canis lagopus, Linn.; two of Lepus grœnlandicus; and one of Phoca hispida; from Greenland. Presented by Mr. Wm. S. Vaux.

Mounted specimen of Tarandus rangifer, from Greenland. Presented by Col. Geo. A. McCall.

DONATIONS TO LIBRARY

In March and April, 1855.

March 6th.

Journal of the Society of Arts, (London,) Nos. 63—68, and 85—105. From the Society.

Archiv für Naturgeschichte. Von H. Troschel. 1854. No. 3. From the Editor.

Flora Medica. A Botanical Account of all the more important plants used in Medicine. By John Lindley. 8vo. From Mr. A. J. Brasier.

Rough Notes of an exploration for an inter-oceanic canal route by way of the Rivers Atrato and San Juan, in New Grenada. By John C. Trautwine. 8vo. From the Author.

The History of Mason and Dixon's Line. By John H. B. Latrobe. An Address before the Historical Society of Pennsylvania, Nov. 8th, 1854. From the Author.

American Journal of Science and Arts for March, 1855. From the Editors.

An Essay to prove the contagious character of Malignant Cholera. By Bernard M. Byrne, M.D. 2d edition. 8vo. From the Author.

Dr. Wilson presented the following, on the usual condition:—

Comptes Rendus. Tome 39, Nos. 25, 26; Tome 40, Nos. 1, 2, 3.

Annales des Sciences Naturelles. 4me serie. Vol. 2, No. 3.

Revue et Magasin de Zoologie. 1854. No. 12.

London Athenæum, for Jan. 1855.

Mikrogeologie. Das erden und (elsen schaffende Wirken des unsichtbar kleinen selbständigen Lebens auf der Erde. Von Chr. Gott. Ehrenberg. 2 vols. folio.

March 13th.

Virginia Medical and Surgical Journal, for March, 1855.

New York Medical Times for March, 1855. From the Editors.

Nineteenth Annual Report of the Managers of the New York Institution for the Blind. From the Managers.

Report of the State Librarian to the Legislature of Pennsylvania for 1854. From the State Librarian.

Illustrations of the Birds of California, Texas, &c. By John Cassin. No. 8. From Dr. Wilson.

Journal of the Franklin Institute for March, 1855. From the same.

March 20th.

Monographie des Guepes Sociales. Nos. 1, 3, 6. Par H. De Saussure. From the Author.

Statistical View of the United States; being a compendium of the Seventh Census. By J. D. De Bow. 8vo. From Mr. Isaac Lea.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 97—128. From the Society.

April 3d.

Histoire Naturelle, Physique et Politique de l'Ile de Cuba. Par M. Ramon de la Sagra. Nos. 73, 74. From Messrs. Vaux, Elwyn, Clay and Carpenter.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 129—144. From the Society.

Charleston Medical Journal and Review for March, 1855. From the Editors.

The New York Quarterly. Vol. 4, No. 1. April, 1855. From the Editors.

Dr. Wilson presented the following, on the usual condition:—

The Imperial Dictionary, English, Technological and Scientific. Edited by John Ogilvie, LL.D. 2 vols. imperial 8vo.

Testacea Britannica, or Natural History of British Shells. By George Montagu. 2 vols. 4to.

Revue et Magasin de Zoologie, 1855, No. 1.

Annales des Sciences Naturelles. 4me serie. Tome 2, No. 4.

London Athenæum for February, 1855.

Comptes Rendus. Tome 40, Nos. 4, 5, 6, 7, 8.

April 10th.

Niger Flora: or an enumeration of the Plants of Western Tropical Africa, collected by the late Dr. Theod. Vogel in 1841. Edited by Sir Wm. Hooker. 8vo. Deposited by Mr. A. J. Brasier.

The American Sportsman. By Elisha J. Lewis, M. D. 8vo. From the Author.

July 17th, 1855.

Major LE CONTE in the Chair.

A letter was read from the Corresponding Secretary of the California Academy of Natural Sciences, transmitting the Proceedings of that Society, vol. i. pp. 1—45.

Dr. Leidy presented a paper intended for publication in the Proceedings, entitled, "Descriptions of some new Marine Invertebrata, by William Stimpson, Zoologist to the U. S. Surveying Expedition to the North Pacific, Japan Seas, &c., under Commander C. Ringgold, U. S. N." Communicated by the Smithsonian Institution. Referred to Dr. Leidy, Dr. Bridges and Mr. Cassin.

July 24th.

Vice President BRIDGES in the Chair.

Letters were read—

From the Trustees of the New York State Library, dated Albany, 20th July, 1855, acknowledging the receipt of last No. of the Proceedings.

From the Smithsonian Institution, dated Washington, March 26, and June 16th, 1855, also acknowledging receipt of same, and of the Journal, Part i. Vol. iii.

From C. F. Hagedorn, Esq., Bavarian Consul, announcing the decease of Dr. J. G. Flügel, of Leipsic.

Dr. J. Aitken Meigs read a paper intended for publication in the Journal, entitled, "Relation of Atomic Heat to Crystalline Form." Referred to Dr. Leidy, Dr. Bridges and Dr. Drysdale.

July 31st.

Vice President BRIDGES in the Chair.

The Committee on Mr. Stimpson's paper, read 17th inst., reported in favor of publication in the Proceedings.

Descriptions of some new Marine Invertebrata. By WM. STIMPSON, *Zoologist to the U. S. Surveying Expedition to North Pacific, Japan Seas, etc., under direction of Commander C. Ringgold, U. S. N.*

(Communicated by the Smithsonian Institution.)

ECHINODERMATA.

1. OPHIOTHRIX SPONGICOLA. Disk covered with short spines, except on the large triangular plates at the bases of the arms; the sides with scattered, minute spines; the interbrachial plates below subrhombic in shape. Arms in length seven times the diameter of the disk, broad near their origins but very slender at their extremities; lateral spines six in each row, the upper ones being largest, subclavate, with rounded extremities, compressed and distantly serrated.

The spines near the extremities of the arms are, however, generally pointed. Disk reddish, with black spots symmetrically arranged; arms red, broadly annulate with black; spines pale brownish. Diameter, 4 inches. Found among soft sponges in the circumlittoral zone.

Hab. Australia, at Port Jackson.

2. OPHIOTHRIX PLANULATA. Disk and arms much depressed; the latter in length ten times the width of the former. Disk small, smooth and glossy above; arm-plates broadly triangular, separated from each other by a row of the small plates with which the rest of the disk is covered. Below, the sides of the disk, between the arms, are soft and covered with short spines; the interbrachial plates subrhombic, but not very distinct. The mouth-fissures have each two large suckers, but no papillæ on their sides. Arms suddenly tapering at the middle; their superior plates trapezoidal and minutely granulated; lateral spines five in each row, the middle ones largest, compressed, with blunt extremities, longitudinally striated, and denticulated on their edges. Disk dark greenish; arms colored with red and light brown alternately: below white. Taken in fifteen fathoms among dead corals, on "Groper Shoal," in S. Lat., 20° E. Lon. 160½.

3. OPHIOLEPIS PERPLEXUS. Arms filiform, in length about seventeen times the diameter of the disk. Dorsal surface of the disk covered with small scales, the arm-plates of each pair being elongated, very narrow, broadest exteriorly, and including a triangular space between them; ventral surface with the interbrachial plates broader than long; mouth with a pair of large scale-like papillæ at the summit of each projecting angle, and a pair at the base of each fissure. Lateral spines of the arms five in number in each row, short, thick, and pointed. Disk above dark greyish; arms purplish-brown, darker and lighter alternately; below reddish. The disk is very soft and is always cast by the animal when caught; the slender arms then twisting together in all directions. Found in the circumlittoral zone in mud.

Hab. Australia, at Port Jackson.

4. THYONE BUCCALIS. Subfusiform, of a brownish-grey color, with the suckers small, uniformly distributed over the whole surface. Anus with five calcareous papillæ. Tentacula much branched, ten in number, two of which are much smaller than the rest. The oral column is the most remarkable feature in this species, it being about one-half as long as the body, and consisting of a flexible calcareous cylinder, contorted below, and sending ten short spurs of points upward, and five pairs of long twisted ones downward. Its flexibility is owing to the circumstance that its calcareous matter is deposited in the form of irregular plates connected by softer parts. The inferior spurs thus seem jointed. Length, 2 inches; breadth, 0.35 inches. Taken near low water mark, under stones.

Hab. Australia, at Port Jackson.

5. CHIRODOTA AUSTRALIANA. Small, and very slender; surface covered with papillæ of two kinds; the smaller and less conspicuous of which are spread everywhere, and consist of accumulations of spiculæ, which are hooked at one extremity and slightly bent at the other. The larger kind are scattered, quite thickly, along one side of the body only; and are prominent, circular, white, calcareous, varying in size from 1-40th to 1-20th of an inch in diameter; they are composed of accumulations of minute, six-spoked wheels. The tentacula are ten in number, each having ten serrulated digitations, placed on the outer and the lateral margins of a sort of disk, which forms the anterior half of the inner side of the tentacle. Color, pale yellowish. Length, 2 inches; breadth, 0.2 inch. Found under stones, near low-water mark.

Hab. Australia, at Port Jackson.

6. SYNAPTA DOLABRIFERA. Slender, but rather short, of a dirty yellowish color; skin very thickly provided with hook-bearing plates, which have usually

about ten perforations, the middle ones largest. The hamulæ are a little larger than the plates, pickaxe-shaped, with the extremity of the handle also provided with a double hook, though of very small size. Tentacula twelve, digitate nearly to their bases; digitations short, about fourteen in number to each tentacle. Length 2 inches. Found under stones, near low-water mark.

Hab. Australia, at Fort Jackson.

TUNICATA.

7. CYNTHIA ANGULARIS. Small, elongated, with a small base, and seven or eight longitudinal ridges; test coriaceous, nearly smooth between the ridges, of a pale yellowish color; apertures square, at the extremities of short tubes which are placed close together at the extremity of the body; each tube with four longitudinal reddish bands corresponding to the angles. Length, 1 inch; breadth, 0.3 inch. On sea-weeds in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

8. CYNTHIA LÆVISSIMA. Egg-shaped; test very thick, of a pale orange color, very smooth and glossy; apertures small, red. Branchial sac with about 20 folds, and with twenty elongated, fimbriated tentacles at its apertures. Some of these tentacles, as is usually the case in this genus, are much smaller than the others. Length 1 inch. Found under stones in the lower part of the littoral zone.

Hab. Australia, at Port Jackson.

9. CYNTHIA SABULOSA. Rounded, laterally compressed, usually attached by one or more short stalks. Test strong and hard, but not very thick; surface covered with sandy particles, which adhere so strongly as to form part of its substance. Apertures on slight prominences, the branchial largest and dotted with black. Branchial folds eight in number, narrower than their interspaces. Branchial tentacles simple, filamentary, long and very numerous. Diameter 1 inch. Found in the circumlittoral zone, on muddy bottoms.

Hab. Australia, at Port Jackson.

10. CYNTHIA DUMOSA. Globular, of a yellowish-brown color; surface villous, and provided with numerous stout, sub-conical processes of the test, which have short irregular branches. Apertures cross-shaped when contracted; the branchial more than twice the size of the anal. Branchial sac with twelve very large folds, which are much broader than their interspaces. Tentacula also twelve in number, including four or five small ones; biserrate, folded longitudinally, and curved so as to present their pinnæ toward the branchial cavity. Diameter 1 inch. Found in the circumlittoral zone, on muddy bottoms.

Hab. Australia, at Port Jackson.

11. MOLGULA INCONSPICUA. Small, free, bullet-shaped; test thin, brittle, with a thin but solid coating of sand; apertures clear, transparent white; the branchial six-rayed; the anal with four well-marked lobes. Branchial sac with eight folds equalling their interspaces in width. Diameter, half an inch. Found in the circumlittoral zone, on sandy bottoms.

Hab. Australia, at Port Jackson.

12. ASCIDIA SYDNEIENSIS. Gregarious, several specimens growing together in one mass. Test irregular in shape, thin, often translucent, of a pale purplish color. Apertures on long tubes, which are marked with longitudinal ridges corresponding in number with the rays of the apertures; the branchial having seven, the anal six rays. Branchial sac finely reticulated, the transverse threads much less prominent than the longitudinal ones. Tentacula simple, thread-like, about one hundred in number, curved and projecting into the cavity so as to form a dome-like filter for the water as it enters the branchial sac. Length 1½ inches. Found near low-water mark, among rocks.

Hab. Australia, at Port Jackson.

13. ASCIDIA SUCCIDA. Test thick, cartilaginous, juicy, irregularly lobed, especially near the apertures, which are sessile, rather large, valvate, and difficult to detect in the contracted specimen. Branchial sac reticulated, the reticulations sharply projecting, the transverse striæ, being as prominent as the longitudinal ones, which are about ninety in number. Tentacles simple, filamentary, distantly arranged around the entrance of the sac, and only twenty in number. Color of the posterior part of the body purplish; the rest much paler; apertures ferruginous. Length 1½ inches. Found near low-water mark, among stones.

Hab. Australia, at Port Jackson.

NUDIBRANCHIATA.

14. EOLIS CACAOTICA. Slender, tapering posteriorly to a fine point; of a clear pale rose color on the body above, and on the anterior margin of the foot. Tentacula rather short, rose-colored; the orals a little the longest; dorsals tipped with white, and having a ring of white at the base; eyes large and conspicuous Branchiæ of a dark chocolate color, compressed, tipped with white; arranged in eight or ten clusters, and placed on the sides of the body, anteriorly, leaving much of the back bare; more numerous and crowded posteriorly so that the clusters become indistinct. Length 1½ inches. Found under stones, in the littoral zone.

Hab. Australia, at Port Jackson.

15. TRITONIA PALLIDA. Truncate in front, tapering gradually behind; of a transparent white color, with a few flake-white spots on the back; oral veil large, with eight elongated digitations, four on each side; tentacles rather long, with their sheaths having waved edges, and the filaments around the truncated extremity of a dark brownish color. Branchiæ small, margined with flake-white, extending in a line on each side along the upper edges of the body; the more conspicuous tufts being sixteen in number, having smaller ones between them. A white line extends below and parallel to the branchiæ, on the sides of the body. Length, 1 inch; breadth, 0.25 inch. On rocky bottoms, in the coralline zone.

Hab. False Bay, Cape of Good Hope.

16. TRIOPA LUCIDA. Depressed, broadest anteriorly; clavate appendages constricted at their bases, in number about forty, numerous and small in size at the head, the posterior ones largest. Tentacula long, with about twelve laminæ. In front of each tentacle, near the margin, stands a clavate process much longer than the others. Branchiæ consisting of three plumes, about equal in size. Color uniform transparent white, except that the tentacula, branchiæ, and appendages are all of a yellowish color towards their extremities. The tips of the clavæ appear open or hollow from their transparency. Length, 0 8 inch. Found under stones, at low-water mark.

Hab. Cape of Good Hope, at Simon's Bay.

17. GONIODORIS ? OBSCURA. Oblong, quadrilateral; cloak broad, widely projecting so as to conceal the oral tentacles anteriorly, and tapering from opposite the branchiæ, to a blunt point behind, disclosing the foot, which extends further to a distance of one-fourth the length of the body. Dorsal tentaculæ elongated, retractile, smooth and glossy to appearance, but having from twelve to fourteen laminæ. Branchiæ retractile, consisting of twelve elongated, simply-pinnate leaflets, which form a cup around the anus. Color a dark greenish, or yellowish grey, with numerous black and yellow dots; a row of black spots is conspicuous, margining both the mantle and the foot. Head and oral tentacles bluish-grey. Dorsal tentacles with red tips. Length, 1¼ inches; breadth, 0.3 inch. Found among soft sponges in the circumlittoral zone.

Hab. Australia, at Port Jackson.

This species, with another closely allied and occurring in the same locality form a genus probably new. It differs from *Goniodorus*, in having retractile ten-

tacula, and in the greater development of the mantle; and from *Doris* by the elevated, oblong, quadrangular shape of the body. I would propose for it the name of *Hypselodoris*.

18. Doris obtusa. Body very convex above; of a pale yellowish color, with brownish spots; mantle covered with minute crowned tubercles. Tentacula short, of a purplish brown color, with five transverse laminæ at their tips, where they are broadly and obliquely truncated. Branchiæ consisting of a crown of eight short, simply pinnate leaflets. Length, 0.35 inch. Found among sponges in the circumlittoral zone.
Hab. Australia, at Port Jackson.

19. Doris excavata. Broad, depressed, of a yellowish color; mantle widely expanded, covered with minute, distant, tubercles. Foot broad in front, narrow behind and projecting a little distance beyond the posterior margin of the mantle. Tentacula of a purplish-brown color. Branchiæ consisting of five large, much branched plumes, which are retractile into a large, widely-open cavity. Length, 0.7 inch; breadth, 0.4 inch. Found among stones, etc., in the circumlittoral zone.
Hab. Australia, at Port Jackson.

TURBELLARIA.

20. Leptoplana patellarum. Large, dilated, depressed, nearly ovate in shape, broadest behind. Eyes in four clusters; the anterior ones elongated and nearest each other; the posterior ones rounded and situated on wart like protuberances. Color above dark yellowish, mottled, darkest in the middle; below waite. Length, 0.9 inch: breadth, 0.65 inch. Found under the large limepits which are common on the rocks at half-tide in Simon's Bay, Cape of Good Hope.

DIONCUS, n. g. Corpus planum, dilatatum. Caput corpore continuum. Os subcentrale. Ocelli numerosi, in umbones duos claros subdistantes dispositi. Maricolæ.

21. Dioncus badius. Body half as broad as long, of a reddish-brown color, above, with a flake-white dust intermixed. Anteriorly there are two colorless, slightly prominent, circular knobs, which contain, scattered over the whole surface, the very numerous and minute eyes. Below, the body is of a pale sepia color, except the white digestive organs; and the mouth is placed behind the centre. Length, 1.5 inches; breadth, 0.75 inch. Found under stones in the littoral zone.
Hab. Australia, at Port Jackson.

22. Dioncus oblongus. Oblong-oval, of a pale, transparent, brownish-grey color above. Eye-clusters two, black, conspicuous, each surrounded by a ring of white; the few large eye spots being crowded together at the summit only of the oculiferous knobs. Length, 1 inch; breadth, 0.35 inches. Found under stones in the littoral zone.
Hab. Australia, at Port Jackson.

23. Thysanozoon Australe. Oval, rather broad, of a dark color, mottled with blackish and brownish above; papillæ large, about sixty in number, nearly equal in size on all parts of the body. Eyes numerous, in an oval white patch between the bases of the tentacula, which is nearly divided in two by a wedge-shaped clear space entering from behind. Length, 1 inch; breadth, 0.6 inch. Found on soft sponges in the circumlittoral zone.
Hab. Australia, at Port Jackson.

24. Valencinia annulata. Elongated, convex above: head broad, abruptly truncated in front with a slight sinus at the middle, rounded at the sides and narrowing gradually to the neck. Color purplish-brown, with a pale-yellowish band across the head, and a narrow white annulation around the body just be-

hind the neck, which is followed by other similar rings at regular distances throughout the length of the body, to the number of about sixteen. A narrow median dorsal white line, commencing at the head, and two lateral ones, one on each side, communicating at the neck, also extend throughout. Length, 3 inches; breadth, at the middle, 0.08 inch. On weedy sand in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

25. POLIA RHOMBOIDALIS. Convex, largest anteriorly, of a pale reddish color, with darker sub-margined longitudinal stripes. Head narrower than the body, rounded in front; neck slightly marked. Eyes in four clusters; with four ocelli in each cluster, arranged at the angles of a diamond-shaped area. The clusters of the posterior pair are much the smaller, and are placed in the dark spots forming the commencement of the longitudinal stripes. Length, 1 inch: breadth, 0.05 inch. Found in the littoral zone.

Hab. Australia, at Port Jackson.

26. POLIA GRISEA. Elongated, subcylindrical, of a grey color; head distinct, subtriangular, much narrower than the body, and separated from it by a well-marked neck. Eyes in four clusters; two irregular rows on each side of the head to the number of twenty more; while on each side of the neck there is an elongated, oblique, reddish spot, with two or three ocelli along its outer edge. Length, 0.8 inch. Found on sand-flats in the litteral zone.

Hab. Coast of Virginia, at Norfolk.

27. TETRASTEMMA INSIGNE. Minute, slender, convex, broadest behind the middle; head with the eyes distinct, and with a lateral fold between the anterior and posterior pairs, and one also behind the posterior pair. Color pale-brownish. Length, 0.4 inch; breadth, 0.025 inch. On weedy sand in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

28. MECKELIA OLIVACEA. Slender, convex above, especially anteriorly where is also the greatest breadth; head with a longitudinal slit which extends far down each side, and is covered by a slight vertical notch at the anterior extremity; genital opening large, on the lower surface of the neck, just behind the termination of the lateral slit. Color anteriorly very dark greenish, or olivaceous; posteriorly a much paler green. Length, 3 inches; breadth, 0.1 inch. Common in sandy bottoms in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

GEPHYREA.

29. PHASCOLOSOMUM NODULIFERUM. Sub-fusiform broad, terminating in a point posteriorly, of a pale brownish color; surface with numerous hard, dark-brown, large, elevated tubercles, which are uniformly scattered, and extend much beyond the arms toward the proboscis, around the base of which they become smaller. Proboscis smooth, except near its extremity, where it is annulated with narrow, crowded, delicate, black rings, which are seen by means of a magnifyer to be composed of minute echinulations. Mouth with two clusters of short tentacles or fimbriations, of different lengths. Color pale brown. Length of the body, 1.15; breadth, 0.4 inch. Under stones in the littoral zone.

Hab. Australia, at Port Jackson.

30. PHASCOLOSOMUM SEMICINCTUM. Of a light brown color, with bluish reflections; surface very smooth in appearance, but showing, under a magnifyer, a few minute, black, granulations, distantly scattered. Proboscis very long, annulated with narrow black rings towards the extremity; mouth with two tufts of blunt tentacula. Found in holes in coral, etc., in the coralline zone.

Hab. Cape of Good Hope, in False Bay.

In both these species the generative organs are placed one on each side of

the rectum; their openings externally are indicated by a bluish spot on each side of, and distant from, the anus.

ANNELIDA.

31. Tecturella luctator. Subquadrilateral, turrited above, of the same thickness throughout except toward the posterior extremity; the rings usually indicated by transverse folds of the envelope which is loose and flabby when the animal is alive, agglutinating sand, and of a yellowish-green color. Rings about forty in number. Anterior tentacles capable of being protruded to considerable length, when they are smooth and cylindrical. Posterior tentacles dark green, slender, and very numerous, in two clusters. Superior setæ capillary, as long as the inferior ones, and eight in number in each of the compressed fascicles which contain them. Inferior pinnæ containing each a single long stout hooked seta. Length, 1.5 inch. Found loosely attached under stones near low-water mark.

Hab. Cape of Good Hope, at Simon's Bay.

32. Siphonostomum lævis. Body thickest near the middle, suddenly tapering and slender posteriorly; much smoother than is usual in the genus, showing only the delicate, close, slightly-raised annulations. Superior setæ capillary; inferior ones short, strong, curved, but not hooked. Setæ of three segments directed forward; those of the first in four fan-like clusters, arranged so as to form a circle around the mouth; those of the second segment much fewer in number, and placed on the sides of the body only; those of the third not conspicuous. Anterior tentacles long, diverging; posterior ones shorter, slender, about twenty in number, arranged in a half-circle as in *Sabella*. Colors: body pale reddish; tentacles zonate with white, brownish, and pale green. Length, 2 inches; breadth, 0.2 inch. Found in holes which it forms in fragments of corals, in the coralline zone.

Hab. Cape of Good Hope, at False Bay.

33. Chætopterus capensis. Small, short, having a general resemblance to *C. pergamentaceus*; inhabiting a papyraceus tube. Annulations about thirty in number. Cephalic ring equalling in size the succeeding or first ring. In the first eight rings, the superior pinnæ only are developed, and are provided with long lanceolated setæ; those of the third pair, however, have a fasciculus of stout black truncated setæ at their bases. Inferior pinnæ first appearing on the ninth ring, and provided with short uncinate setæ, which have each six or eight uncinæ, occupying the whole length of their edges. Dorsal pinnæ of the tenth ring expanded into wing-like lobes; ventral pinnæ united into a transverse disc, as is also the case on the 11th, 12th and 13th. In the 11th—15th rings the dorsal pinnæ are united to form sacs, of which those of the 14th and 15th are much the smallest, and compressed above; the ventral shields of these two rings are compressed, bilobate, and protruded so as to lose the disc-like form. Dorsal pinnæ of the 16th and succeeding rings large and finger-shaped, with capillary setæ;—posteriorly they grow more slender but not much shorter. In these rings the ventral pinnæ form four lobes. Length 2 inches. Found in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

34. Chætopterus luteus. Long and slender, cylindrical, of nearly the same thickness throughout; color lemon-yellow. Tube thin, membranous within, exteriorly composed of mud. Rings about forty in number. Ventral shields of the 14th and 15th rings disk-like as in the others; those of the posterior rings with the two middle lobes only developed. Dorsal pinnæ of the posterior rings full and lobe-like at the base, but suddenly tapering into a long sheath for their few capillary setæ. Length three inches. Found abundantly on muddy bottoms in the circumlittoral zone.

Hab. Australia, at Port Jackson.

35. Cirratulus australis. Large, rounded above, and flattened below, pos-

teriorly tapering. Head obtuse, eyes none; neck with two crowded clusters of filaments, one on each side of the back at the fourth segment; body with a series of filaments along each side, one to each ring; which, however, are in most specimens wanting on some of the rings. Setæ in two rows on each side; the superior ones capillary; the inferior ones (except anteriorly) short, stout and arranged three in number to each ramus. Color greenish or reddish-brown. Length, 9 inches; breadth, 0.45 inch. Found in the circumlittoral zone.

Hab. Cape of Good Hope, False Bay.

36. GLYCERA KRAUSSII. Of a light flesh color, composed of about 100 closely-set rings, at the 10th of which the breadth is greatest. Head subtriangular, with 16 segments; terminal tentacula scarcely perceptible. Proboscis smooth, in length one-fourth that of the body; teeth small, much curved. Pinnæ quadrilobate; the few superior setæ capillary; the inferior ones very numerous and falcate. Inferior cirrus large, lobe-like, placed close to the pinnæ; superior cirrus placed on the side of the body, remote from the pinnæ. The branchial tonguelet was retracted in the specimen examined. Length, 2 inches. Found in the circumlittoral zone, on sandy bottoms.

Hab. Cape of Good Hope, at Simon's Bay.

37. NEPHTHYS LONGIPES. Body somewhat depressed, of a bluish-white color, narrow in comparison with the length of the pinnæ which project to a distance equalling its width, on each side. Rings about eighty in number. Tentacula small, placed rather near the base of the head, two on each side. Proboscis with the terminal cirri short, the lateral ones large, curving backward, and covering the anterior half of the organ, in eight circular approximated rows. Pinnæ large; their membranous leaflets very narrow; the setæ capillary, of great length, and equal in number in the superior and inferior pinnæ. Branchial tonguelet large, much curved; often with a smaller one placed close to it on the superior pinnæ. Length, 3 inches; breadth, 0.42; of the body alone, 0.16 inch. In sand at low-water mark.

Hab. Australia, at Botany Bay.

38. LYSIDICE ROBUSTA. Body much thicker than is usual in the genus; very convex above, and flat below; of a copper color. Rings very closely-set, about one hundred and twenty in number. Head concealed, but provided with three conspicuous, tri-articulate tentacula, and with two large rounded lobes below. Proboscis very short; jaws very strong, calcareous externally, corneous within. Neck equalling the succeeding two rings together in size. Pinnæ very small; superior cirrus large, inferior one short; superior setæ capillary, lanceolated but tapering to a long hair-like extremity; inferior ones falcate with short smooth terminal joints; acicle blunt, of a dark-brown color. Length, 2.8 inches; breadth, 0.15 inch. Found under stones near low-water mark.

Hab. Australia, at Port Jackson.

39. NEREIS MENDAX. Small, rather slender, largest anteriorly, flattened posteriorly. Head elongated, narrow, with the terminal tentacles well developed and extending somewhat beyond the thick inferior ones; tentacula cirri very slender, variable in length, but usually reaching beyond the tentacles; eyes very conspicuous, the posterior ones largest and nearest to each other. Pinnæ rather large, anterior ones with pointed lingulæ, and dorsal and ventral cirri; in the posterior pinnæ the superior lingula loses its cirrus, and expands into a broad lamella. Color variable; pale red, or brownish, often farinaceous posteriorly; always with a dorsal line of flake-white, and a white spot between the eyes. Length, 1.5 inches; breadth, 0.2 inch. It inhabits a tube. Common in the circumlittoral zone.

Hab. Cape of Good Hope, at False Bay.

40. NEREIS OPERTA. Large, of an uniform dark sepia color above, paler below and posteriorly. Head short, eyes nearly hidden under the integument; inferior tentacles extending beyond the others. Anterior pinnæ with blunt lin-

gulæ, large superior cirri, and very stout inferior setæ. Posteriorly the cirri are reduced, the superior lingula compressed and slightly expanded, bearing the cirrus upon its upper edge. Maxillæ broad, little curved, and nearly smooth on their inner edges. Length, 4 inches; breadth, 0.35 inch. Found among rocks at low-water mark.

Hab. Cape of Good Hope, at Simon's Bay.

41. LEPIDONOTE SEMITECTA. Scales about twelve in number on each side, so small as to reach each other without overlapping and to leave the middle of the back bare. Head quadrangular with four minute eyes; and five tentacles, the median largest, the exterior ones longer than the intermediates, but like those annulated with black. Lateral cirri short, each with a black ring near its tip. Color greyish-crimson, with black dots along the middle of the back. Scales bright crimson, except at their attachments where they are white. Length 1 inch; breadth, 0.3 inch. Found at low-water mark, in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

CHORISTOPODA.

42. ANTHURA POLITA. Cylindrical, smooth and shining; the seventh segment nearly as large as the sixth. Head small, inferior antennæ as long as the head, somewhat larger than the superior ones and placed before them; eyes very minute, black, placed rather on the sides of the head at the anterior corners. Legs of the first pair very thick, the rest slender. Abdomen short and broad. Color pale greyish, mottled. Length, 0.9 inch; breadth, 0.13 inch. Found at the depth of two inches in sand, above half-tide.

Hab. Coast of the United States, at Norfolk.

43. ANTHURA PUNCTATA. Anterior segments elongated and slender, the sixth broadest, the seventh very short, and bearing a much smaller pair of legs than the others. Head scarcely narrower than the first thoracic segment, with a slight rostrum, and large black eyes at the anterior corners; the inferior antennæ largest. The first three pairs of legs have much larger hands than the posterior ones; those of the first pair being somewhat shorter and thicker than the others. Color greyish above, from the numerous minute, black punctations; pale yellowish or whitish below. Length, 0.8 inch; breadth, 0.8 inch. Found among Gorgoniæ in the coralline zone.

Hab. Cape of Good Hope, at Simon's Bay.

44. ANTHURA CATENULA. Very slender, whitish, with a hollow square of black on each segment above, giving a chain-like appearance to the back; head smaller than the first thoracic segment; antennæ rather long; eyes black, at the anterior corners of the first square of color; anterior pair of legs short, thick, and with strong, sub-cheliform hands; remaining legs slender. Abdomen slightly depressed, with a black transverse bar, and a few symmetrically arranged black spots posteriorly. Length, 0.7 inch; breath, 0.06 inch. Found under stones at low-water mark.

Hab. Cape of Good Hope, at Simon's Bay.

45. ANTHURA LÆVIGATA. Body smooth and shining, transparent white, except a few crimson spots at the extremities. Head narrow; antennæ small, flattened; eyes minute, red. First three pairs of legs stout, with equal, sub-cheliform hands; posterior legs slender. Abdomen with its posterior funnel-shaped cavity large, and with its anterior segments well-marked. Length, 1 inch; breadth, 0.2 inch. On sandy bottoms in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

46. CAPRELLA SOLITARIA. Smooth, slender, bright crimson; superior antennæ with large peduncles, inferior ones slender, sub-pediform. Head with a strong spine, pointed forward, between the minute eyes. Hands large, with two

spines within, the largest next the finger. Branchial leaflets of the third and fourth segments very small. Posterior legs with their terminal articles much curved. Length, 0.6 inch; breadth, 0.05 inch. A single specimen, the only *caprella* taken at the Cape, occurred on a gravelly bottom in Simon's Bay.

47. IPHIMEDIA OBESA. Robust, thick; superior antennæ longest, in length two-thirds that of the body, and with thick basal articles. Eyes very large, sub-reniform, black. Feet of the first two pairs with equal subcheliform hands of moderate size. Caudal stylets slender, smooth; the posterior ones bi-ramous. Tail terminating in one elongated scale. Color crimson with flake-white blotches. Length, 0.25 inch. Found in the circumlittoral zone, on weedy and sandy bottoms.

Hab. Australia, at Port Jackson.

48. ŒDICERUS FOSSOR. Body rounded above; abdomen with the third and fourth articles compressed and raised above into a sharp crest. Head with small round black eyes; superior and inferior antennæ equal, with stout flagella forming half their length, each flagellum consisting of about eighteen articles, and having a serrated appearance from the produced, spine-like inferior corners of each article. Mandibles palpigerous. External maxillipeds much elongated, and curving downward. Feet of the first two pairs with equal, rather broad, ovate hands, the finger being one-half as long as the hand; those of the third and fourth pairs with the terminal article sub-ovate or paddle-shaped, with a rounded extremity covered with hairs, without an unguiculus; fifth and sixth pairs very short, with a compressed, clavate, or cutlass-shaped terminal article. Epimera of the fifth pair very large, square. Caudal stylets all bi-ramous; those of the third pair with flattened rami, very hairy on their inner edges. Color white with a few blackish spots. Length 0.2 inch. Found in the littoral zone; concealing themselves in the sand as they are washed out from it by successive waves.

Hab. Australia, at Botany Bay.

49. GAMMARUS RUBRO-MACULATUS. Rather large, spotted with crimson above, white below. Eyes sub-ovate. Superior antennæ half as long as the body, inferior ones much shorter and more slender. First pair of hands very small and weak; those of the second pair large, compressed, and with a sharp spine at the middle of the lower edge, where the finger terminates. Abdomen exceeding the thorax in length, or at least equalling it, the appendages excluded. Last pair of caudal stylets half as long as the abdomen; their rami long and broad, equal, and spinulated along their edges. Length half an inch. Found on muddy bottoms in the circumlittoral zone.

Hab. Australia, at Port Jackson.

50. LEUCOTHOE AFFINIS. Robust, thick anteriorly, narrowed much at the abdomen, of a crimson color, mottled with white. Antennæ equal in length, slender, uniform in thickness as far as the short flagellum, where they abruptly diminish in size. Eyes large, ovate, broadest above, whitish, with black beneath. First pair of hands with the thumb and first article of the bi-articulate finger greatly elongated and slender; second pair of hands very large, ovate formed of the penult joint, with a parallel curved thumb projecting from the antepenult. Legs very slender, the posterior pair longest. Length, 0.5 inch. Found on a gravelly bottom in the coralline zone.

Hab. Cape of Good Hope, at False Bay.

51. ANONYX VARIEGATUS. Large, slightly compressed; back rounded, smooth and glossy, with a sinus at the abdomen. Antennæ about equal in length, the superior ones thickened to the origin of the accessory flagellum, which is short and hair-like, equal in size with the true flagellum. Eyes large, black, reniform. First pair of legs with an elongated, tapering hand, and a minute finger; basal joints of the posterior pairs smooth. Caudal stylets elongated and slender. Color yellowish mottled with brown, with scattered white dots. Length, 0.8 inch. On sandy bottoms in the circumlittoral zone.

Hab. Cape of Good Hope, at Simon's Bay.

The Committee on a paper by Dr. J. Aitken Meigs, entitled "Relation of Atomic Heat to Crystalline Form," reported in favor of publication in the Journal.

On leave granted, Dr. Leidy presented for publication in the Proceedings a paper entitled "Indications of twelve species of Fossil Fishes," which was referred to the following Committee: Mr. Cassin, Dr. Le Conte and Dr. Hallowell.

On leave granted, Dr. Carson presented a paper, intended for publication in the Journal, entitled "Descriptions of a new species of Carica, by José del Solar, of Lima, Peru." Referred to Dr. Carson, Dr. Bridges and Major Le Conte.

ELECTION.

The Rev. Henry S. Spackman, Mr. Stacy B. Barcroft, Dr. Richard Clements, and Dr. Henry Tiedemann, of Philadelphia, were elected *Members*.

August 28th.

Vice President BRIDGES in the Chair.

The Committee to whom was referred Dr. Leidy's paper, entitled "Indications of twelve species of Fossil Fishes," reported in favor of publication in the Proceedings.

Indications of Twelve Species of Fossil Fishes.

By JOSEPH LEIDY, M. D.

1. MYLIOBATES SERRATUS. Based upon a specimen consisting of four median dental plates, with parts of two others and the first row on each side of lateral dental plates. The triturating surface of the specimen is quite level, except that it is slightly depressed along the median line, and slopes off in a concave manner. The median dental plates are united by sutures slightly convex forward, and distinctly serrated at their outer part. The first row of lateral dental plates are nearly hexagons, and they are connected with each other and with the median plates by distinctly serrated suture.

The attaching surface of the specimens forms two planes inclining to a median, convex angle.

Breadth of median plates 10½ lines, width antero-posteriorly 1¾ lines.

Locality. Discovered by Dr. C. H. Budd, in the Green Sand of Burlington Co., New Jersey.

Remarks. The specimen closely resembles a corresponding one characterized by Agassiz, as *Myliobates suturalis*.

2. MYLIOBATES RUGOSUS. Based upon a specimen, consisting of four median dental plates, indicating a large species of the genus, though not so large as the *Myliobates Holmesii*, Gibbes, which, however, appears rather to be an *Aetobatis*, judging from Dr. Gibbes' figures,* of the same type as the *A. eximius*. The two latter might be considered as the representatives of a new genus, in which there exists a median row of dental plates, and a single row laterally of small trilateral plates. It would be intermediate to *Aetobatis* and the true *Myliobates*, and might be called *Mesobatis*. The triturating surface of the specimen of *Myliobates*

* Journ. Acad. Nat. Sc. 2d s. i. pl. 43, fig. 1.

rugosus is prominently convex and longitudinally wrinkled, especially at the extremities of the median dental plates. The latter are united by convex sutures directed forward. The attaching surface of the specimen is flat.

Diameter of the median plates transversely 2 inches and 4 lines, antero-posteriorly 4¼ to 5½ lines.

Locality. Discovered by Mr. Horner in the Marl of New Egypt, New Jersey. T. A. Conrad.

3. MYLIOBATES OBESUS. Based upon a pair of median dental plates of a species smaller than *M. rugosus*, and comparatively more convex in its sutures and its triturating surface.

The estimated transverse diameter of the median plates was about 16 lines, the antero-posterior diameter is 3½ lines.

Locality. Discovered by Dr. Charles H. Budd, in the Green sand of Burlington Co., New Jersey.

4. ZYGOBATES DUBIUS. Based upon numerous specimens of isolated dental plates. The median dental plates are comparatively wide compared with their transverse breadth, their triturating surface is convex, and the attaching surface concave and parallel with the former. The lateral dental plates of the first row present a corresponding width and breadth to the median plates. Their triturating surface is convex and slopes off laterally, and their attaching surface is straight.

Transverse diameter of median plates 6 to 16 lines, antero-posterior 2 to 4½ lines, thickness 1½ to 3 lines. Transverse diameter of lateral plates of the first row up to 13 lines, antero-posterior up to 4½ lines.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, South Carolina. Probably washed from eocene beds.

5. AETOBATIS PERSPICUUS. Based upon a specimen consisting of one half of an isolated dental plate of the upper jaw. Although the fragment is a very small one, it is very characteristic. The triturating surface is smooth, excepting, however, the accidental scratches; and it is perfectly level antero-posteriorly, and is slightly convex transversely; and the attaching surface is parallel with the former. The anterior and posterior margins form the segment of a circle bent at a very obtuse angle. The outer extremity of the dental plate is abruptly truncated, and the enamel turns down laterally to the extent of a line. The antero-external angle forms a projecting heel, and the corresponding posterior angle presents a concave fossa for the reception of the contiguous heel of the posterior dental plate.

Estimated breadth of the upper dental series 2½ inches, antero-posterior width of the dental plate at its middle 4 lines, thickness 4 lines.

Locality. Discovered by Dr. J. L. Burtt in the Green Sand of New Jersey.

6. AETOBATIS EXIMIUS. Based upon a specimen consisting of one half of four median dental plates, with a corresponding row of lateral plates. The median plates are perfectly level on the triturating surface, except at their outer extremity, where they are abruptly rounded off. The sutures are slightly bow formed, and of the two sides of the outer extremities that anterior is the longest. The species has but a single row of lateral plates, which are convex at their outer border, and are angular within to join two contiguous median plates.

Estimated transverse diameter of the dental series, including the small lateral plates 23 lines, antero-posterior diameter of the median plates 3½ lines.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, S. C. Probably washed from Eocene beds.

7. ODAX CAROLINENSIS. Based upon numerous specimens, consisting of portions of the jaws and pharyngeal bones, with teeth. External extremities of the maxillary denticles very distinct from one another, convex, six in number in a vertical row of 5½ lines. Pharyngeal bones triangular, with two short equal sides, and the long side measuring from 6 to 8 lines, densely furnished with teeth resembling in form the corresponding ones of *Pogonias*.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, South Carolina.

8. Pogonias. Numerous isolated teeth of this genus, of the same form and size as those of the recent *Pogonias chromis*, were discovered by Capt. Bowman with the preceding in the sands of Ashley river.

9. Sphyræna major. Based upon numerous specimens (more than a hundred) of isolated crowns of teeth, the smallest of which measures 3½ lines long and 2½ lines wide at the base, and the longest 8½ lines long by 4½ lines wide at the base.

Locality. Discovered by Capt. Bowman in the sands of Ashley river, South Carolina.

10. Enchodus ferox. *Sphyræna*, Morton: Syn. Org. Rem. Cret. Group of the U. S., Pl. xii. fig. 1. Based upon specimens in the Cabinet of the Academy, consisting of fragments of the jaws with teeth, which have usually been referred to the genus *Sphyræna*, but to this they do not belong, as the teeth are not inserted in sockets, but are implanted by expanding roots co-ossified with the surface of the jaws. The specimens consist of an isolated anterior tooth (represented in Morton's Pl. xii. fig. 1), of a portion of the left intermaxillary bone with the anterior tooth, which measures 1¾ inches in length from its base of attachment; a fragment of the right intermaxillary bone, with the roots of two large teeth, and a row of small, uncompressed, conical teeth at the outer margin; and a fragment of a palatal bone, with one large conical tooth having trenchant borders, and the roots of two other teeth.

Locality. Discovered in the Green Sand near Mount Holly, New Jersey. The teeth of this species are relatively narrower compared with their length, than in *Enchodus Favjasii*, Ag., from the Maestricht beds.

11. Xiphias antiquus. Based upon a specimen consisting of ten and a half inches of the extremity of the prolonged maxillary bones.

The posterior broken extremity of the specimen is transversely oval in section, and measures 2 inches in its long diameter and 1 inch in its short diameter. Anteriorly the specimen becomes more cylindrical, and at the anterior broken end it measures 5 lines in diameter.

Locality. Discovered by Dr. Chas. H. Budd, in the Green Sand of Burlington Co., New Jersey.

12. Diodon vetus. Based upon numerous specimens consisting of water-rolled jaws with the alveolar and oral teeth.

The internal or oral teeth consist of a conjoined pair of piles, of from 6 to 10 trilateral laminæ, measuring from 3½ to 4½ lines wide. The outer or alveolar teeth are composed of small lamellar denticles, of which the margin of 4 or 5 may be counted anteriorly in the space of a line.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, S. C.

The Corresponding Secretary read his Report for the last two months, which was adopted.

ELECTION.

Senor José del Solar, of Lima, Peru, was elected a *Correspondent*; and Mr. C. F. Hagedorn, of Philadelphia, was elected a *Member*.

Journal of the Indian Archipelago and Eastern Asia. Vol. 8, Nos. 5 and 6. From the Editors.

Quarterly Journal of the Geological Society of London. No. 40. From the Society.

Bulletin de la Société Zoologique d'Acclimatation. No. 1. Mars 1854. From the Society.

Virginia Medical and Surgical Journal for April, 1805. From the Editors.

New York Medical Times for April, 1855. From the Editors.

Life in its Physical Aspects. By Chas. Girard. From the Author.

April 17th.

Victoria Regia. The Great Water Lily of America. By J. Fisk Allen. Elephant Folio. From the Author.

Natural History of New York. Agriculture. By E. Emmons, M.D. Vol. 5. 4to.

Report of the North American Coal Company, Jan. 12th, 1855. From Dr. J. C. Fisher.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 145—160. From the Society.

On Adipocire and its Formation. By Charles M. Wetherill, M. D. From the Author.

Dr. Wilson presented the following, on the usual condition:—

L'organisation du Regne Animal. Par Émile Blanchard. Livs. 11, 12, 13, 14.

Conchologia iconica. By Lovell Reeve. Nos. 136—139.

Cyclopædia of Anatomy and Physiology. By Dr. Todd. Part 43.

Handbuch der speciellen Ornithologie. Auctore L. Reichenbach. Lief. 4.

Comptes Rendus. Tome 40, No. 9.

Annals and Magazine of Natural History. Dec., 1854, and Jan., Feb. and March, 1855.

London, Edinburgh and Dublin Philosophical Magazine. Dec., 1854 and supplement, and Jan., Feb. and March, 1855.

Quarterly Journal of Microscopical Science. No. 10.

Malakozoologische Blätter. Von Menké und Pfeiffer. Dec., 1854, and Jan., 1855.

Journal of the Franklin Institute for April, 1855.

DONATIONS TO MUSEUM

In May and June, 1855.

May 8th.

Skull of a Japanese. From Dr. Liner, U. S. N.

Thirty-eight species of Fossil Shells and Corals, from the Tertiary beds of Jackson, Miss., being the original specimens described by Mr. T. A. Conrad in Wailes' Agric. and Geol. of Mississippi, and in the Proc. Ac. Nat. Sc. Presented by B. L. C. Wailes, Esq., through Mr. Conrad.

Three specimens Triton ingens, from New Jersey. From Mr. Saml. Ashmead.

Three specimens Phosphate of Lead, from North Carolina. Presented by Dr. Horner.

May 22d.

Pelecanus trachyrhynchus, from the Coast of California. Presented by Lieut. W. P. Trowbridge, U. S. A.

Three specimens Phrynosoma cornutum; two specimens Triton ingens; Ocypode arenaria; living specimen Triton tigrinus; and Loligo ——; from Beesley's Point, N. J. Presented by Chas. C. Ashmead.

Petromyzon nigricans; numerous small species of Fishes; from Beesley's Point, N. J. Crangon septemspinosus, from Delaware Bay. Presented by Samuel Ashmead, Esq.

Gelasimus —— ? and Sesarma reticulata; from Dennis Creek, N. J. Presented by Mr. Thos. Beesley.

Stalactites, from the Cave of St. Lorenzo, Bay of Samana, Republic of Dominica. From Capt. McClellan, U. S. A.

Two specimens of Smoky Quartz, from Philadelphia County. From Mr. Kilvington.

June 5th.

A suite of twelve specimens of Calcareous Spar; fine specimen of Zinc Blende with Quartz; all from the Wheatley Mine, near Phœnixville, Pa., and presented by Mr. Charles M. Wheatley.

A large collection of Unios, from Ohio. Presented by Dr. Watson.

Very large and fine specimen of Silicified Wood, from Long Branch, N. J. Presented by Dr. William Camac.

Portraits of Dr. Gerard Troost and of Mr. William Maclure, from the Peale Collection. Presented by Wm. S. Vaux, Esq.

Portrait of Mr. C. A. Lesueur, from the same collection. Presented by Mr. George Ord.

A collection of Birds; Condylura cristata; Macacus nemestrinus, (mounted.) From Mr. John Krider.

June 12th.

Collection of remains of the Megatherium from Skiddaway, Georgia, consisting of the distal extremity of a humerus, six fragments of ribs, four fragments of vertebræ, and a fragment of the lower jaw. Presented by Dr. Robert W. Gibbes, of Columbia, S. C.

Tooth of fossil Elephas, found near Wilmington, N. C. Presented by the same.

Large mass of Mineral Charcoal, found in a vein of Grey Ash Anthracite. Presented by E. Bender, of Minersville, Pa.

Fossil Tooth of Horse, from Galway Co., Ireland. Presented by W. D. Hartman, M. D., of West Chester, Pa.

Specimen of Crystalline Heating Furnace Cinder, from Fairmount Rolling Mill. Presented by C. E. Smith, Esq.

Living Coluber eximius; Heterodon platyrhynos. Presented by Mr. S. Ashmead.

Two specimens Emys guttata. From Dr. Wilson.

Living Triton tigrinus, from Beesley's Point, N. J. From Chas. C. Ashmead.

Asterias ——, from California. Presented by Mr. S. Ashmead.

June 19th.

A fine suite of Minerals, from the Wheatley Mine near Phœnixville, Pa., as follows:—Eleven specimens Phosphate of Lead; nine do. Carbonate of Lead; four do. Sulphate of Lead; two do. Chromo-molybdate of Lead; one do. Yellow Molybdate of Lead; two do. Carbonate of Lead with Carbonate of Copper. Presented by Chas. M. Wheatley, Esq.

One species Fistularia; four do. Aspergillum; one do. Clavagella; one do. Teredo; one do. Xylophaga; ten do. Pholas. Presented by T. B. Wilson, M.D.

Two Fossil Shells; eleven specimens Crystals of Sulphate of Lime; from Isle of Mayo; three specimens of Queen of the Termes bellicosus, from Monrovia, Liberia; one specimen Goliathus giganteus, from Elmina, Africa. Presented by Dr. J. L. Burtt, U. S. N.

Sertularia, from New Jersey Coast. From S. Ashmead, Esq.

Collection of Ferns, from Goree, W. Africa. Presented by Dr. J. L. Burtt, U. S. N.

Specimen of Tuckahoe, (Lycoperdon solidum,) from New Jersey. From Dr. Hallowell.

DONATIONS TO LIBRARY

In May and June, 1855.

May 1st.

Fossil Footmarks in the Red Sandstone of Pottsville, Penn. By Isaac Lea, LL.D. Folio. From the Author.

Proceedings of the Royal Society of Edinburgh; Session 1853–54. From the Society.

Proceedings of the California Academy of Natural Sciences. Vol. 1, pp. 23—34. From the Academy.

An Outline of Medical Chemistry, for the use of Students. By B. Howard Rand, M.D. 8vo. From the Author.

May 8th.

American Journal of Science and Arts, May, 1855. From the Editors.

Charleston Medical Journal and Review, May 1855. From the Editors.

Journal of the Academy of Natural Sciences of Philadelphia. New Series. Vol. 3, part 1. From the Publication Committee.

Proceedings of the National Institute, Washington, D. C. New Series. Vol. 1, No. 1. From the Institute.

Dr. Wilson presented the following, on the usual condition.

Beiträge zur Ornithologie Afrikas. Von Baron J. W. von Müllet. Lief 3—4.

Flora Tertiaria Helvetiæ. Die Tertiäre Flora der Schweiz bearbitet von Dr. Oswald Heer, 1ste lief. Folio.

Untersuchungen über den Bau und die Bildung der Pflanzenzelle. Von Dr. N. Pringsheim. 1ste Abth. 4to.

Abbildungen und Beschreibungen der Blattwespar-Larven, &c. Herausg. von C. G. A. Brischke. 1ste leif.

Xenia Orchidacea. Beiträge zur Kenntniss der Orchideen von H. G. Reichenbach, fils. Heft. 2—3. 4to.

Bryologia Javanica seu descriptio Muscorum Frondosorum Archipelagi Indici. Auctoribus F. Dozy et J. H. Molkenboer. Fascic. 1—5.

Synopsis Plantarum Glumacearum. Autore E. G. Steudel. Fascic. 2—7. 8vo.

Zeitschrift für Wissenschaffliche Zoologie. Herausg. von C. T. von Siebold und A. Kölliker. 6 band, heft 2.

Annales des Sciences Naturelles. 4me serie. Tome 2, No. 5.

Comptes Rendus. Tome 40. Nos. 10, 11, 12.

The London Athenæum for March, 1855.

Malacographia Maderensis. Auctore J. C. Albers. 4to.

Schædel, Hern und Seele des Menschen und der Thiere nach Alter, Geschlecht und Race. Von Emil Huschke. Folio.

Die Versteinerungen der Steinkohlenformation in Sachsen. Von Hanns Bruno Geinitz. Folio.

May 15th.

Annales des Mines. 5me série, tome 5, 3me liv. de 1854, tome 6, 4me liv. de 1854. From the "Ecole de Mines."

Histoire Naturelle des Insectes. Genera des Coléoptères par M. Th. Lacordaire. Tome 2. 8vo. From the Author.

Jahrbuch der K. K. Geologischen Reichsanstalt. 1854, No. 3. 8vo.

Abhandlungen der Mathemat-phys. Classe der K. Bayer. Akad. der Wissen. 7 Band, 2 Abth. 4to. From the Academy.

Recherches sur les Crinoides du Terrain Carbonifère de la Belgique. Par L. de Koninck et H. Le Hon. From the Authors.

Ueber die Fossilen Fische aus der Braunkohle des Siebengebirges. Von Dr. F. H. Troschel. From the Author.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 161—176. From the Society.

Bulletin of the Pottsville Scientific Association, Schuylkill Co., Penna. Jan. and Feb. 1855. From the Association.

Virginia Medical and Surgical Journal for May, 1855. From the Editors.

Johann Latham's Allgemeine Uebersicht der Vögel. Aus dem Englischen übersetzt und mit Anmerlungen und zusaken verschen von J. M. Bechstein. 8 parts. 4to. From Dr. Wilson.

Vollstandiges Register über alle vier Bande oder acht Thiele von J. Latham's Allg. Uebersicht der Vögel. Von D. Von Rademacher. 4to. From the same.

Journal of the Franklin Institute, May 1855. From the same.

May 22d.

Transactions of the Linnean Society of London. Vol. 21, part 3. 4to. From the Society.

Proceedings of the same. Nos. 52—58; and List of the Society for 1854. From the same.

Journal of the Society of Arts (London). Nos. 115—118. From the Society.

First Supplement to Dana's Mineralogy. By the Author. From the Author.

Description de quelques nouvelles especes d'Echinodermes Fossiles. Par M. Hardouin Michelin. From the Author.

Note sur quelques Echinides fossiles. Par H. Michelin. From the Author.

June 5th.

Proceedings of the Boston Society of Natural History. Vol. 5, pp. 177—192. From the Society.

Report on the Geology of the Coast Mountains, California. By Dr. John B. Trask. From the Author.

The Natural History and Antiquities of Selbourne. By the late Rev. Gilbert White. A new edition, with notes by Sir Wm. Jardine. 8vo. From Mr. A. J. Brazier.

Tenth, 17th, 19th, 20th, 22d and 23d Memoirs on the Law of Storms in the Indian and Chinese Seas. By Henry Piddington. From the Author.

On the quantity of Silt held in suspension by the waters of the Hoogly at Calcutta, in each month of the year. By H. Piddington. From the Author.

On the Cyclone-Wave in the Sunderbunds. By H. Piddington. From the Author.

On the Comparative Action of the Marine and Aneroid Barometers and Simpiesometer in Cyclones. By H. Piddington. From the Author.

The Quarterly Journal of the Chemical Society, London. From the Society.

Verhandelingen van het Bataviaash Genootschap van Kunsten en Wetenschappen. Deel 25. 4to. From the Society.

Tijdschrift voor Indische Taal-Land-en Volkenkunde, uitgegeven door het Batav. Genoot. van Kunsten en Weten. Jaargang 1. 8vo. From the same.

Dr. Wilson presented the following on the usual condition.

Revue et Magasin de Zoologie, 1855. Nos. 1, 2, 3.

Quarterly Journal of Microscopical Science. No. 11.

Annals and Magazine of Natural History. April and May, 1855.

London, Edinburgh and Dublin Philosoph. Magazine. April and May, 1855.

Proceedings of the Zoological Society of London. Nos. 260—264.

Conchologia Iconica. By Lovell Reeve. Part 140.

London Athenæum for April, 1855.

Bonplandia. Zeitschrift für die gesammte Botanik. Jahrgang 1855. Nos. 3—4.

Comptes Rendus. Tome 40. Nos. 13, 14, 15, 16.

Synopsis Plantarum Glumacearum. Autore E. G. Steudel. Fascic. 8, 9.

Schreber, "die Säugthiere." Fortgesetzt von Wagner. Supplementband. 5 Abth. 8, 9 Lief.

Histoire naturelle des mollusques terrestres et fluviatiles de France. Par A. Moquin-Tandon. 2e. liv.

Novitates Conchologicæ. Von Dr. Louis Pfeiffer. Lief. 1. 4to.

Spicilegium Molluscorum Terris Orientalis Provinciæ Meditteranensis peculiarium. Auctore J. R. Roth.

Die Tertiäre Flora von Schossnitz in Schlesien. Herausg. von Hein. Rob. Goeppert. 4to.

Untersuchungen über Pteropoden und Heteropoden. Von Dr. Carl Gegenbauer. 4to.

Cyclopædia of Anatomy and Physiology. By Robert B. Todd, M. D. Part 45.

June 12th.

Sitzungsberichte der k. Akad. der Wissen. Mathemat-Naturwissen. Classe. Band 12, heft 5, band 13, heft 1, 2. From the Academy.

Jahrbücher der K. K. Central-Anstalt für Meteorologie und Erdmagnetismus. Von Karl Kreil. Band 1, 2, 1848-9-50. 4to. From the same.

Register zu den ersten 10 Bänden der Sitzungsberichte der Math.-Natur. Classe der k. Akad. der Wissen. From the same.

Jahrbuch der k. k. Geologischen Reichsanstalt, 1854. 5 Jahrgang, No. 2. From the Institute.

Württembergische Naturwissen. Jahreshefte. Herausg. von Prof. Mohl, Pleininger, &c. &c., in Stuttgart. 11er Jahrgang, 1 heft. From the Editors.

Die Geologische Uebersichtskarte des Mittleren Theiles von Süd-Amerika von Franz Foetterle. From the Author.

Archiv für Naturgeschichte. Herausg. von Dr. F. H. Troschel. 1854, No. 4. From the Editor.

Novorum Actorum Acad. C. L. C. Nat. Curiosorum, vol. 24, pars 2. 4to. From the Academy.

Proceedings of the American Philosophical Society, Jan. to April, 1855. From the Society.

Characteristics of some new species of Mammalia collected by U. S. and Mexican Boundary Survey, under Major Emory. By S. F. Baird. From the Author.

Note upon the viviparous Fishes inhabiting the Pacific Coast of North America, with an enumeration of the species observed. By Chas. Girard. From the Author.

Map of Honduras and San Salvador, Central America, showing the line of the proposed Honduras Inter-oceanic Railway. By E. G. Squier. From Dr. S. W. Woodhouse.

Dr. Wilson presented as follows, on the usual condition :—

Annales des Sciences Naturelles. 4me. serie, tome 3, No. 6.

Revue et Magasin de Zoologie. 1854, No. 11, 1855, No. 4.

Comptes Rendus. Tome 40, Nos. 17, 18, 19, 20.

Illustrations of the Birds of California, Texas, and Oregon, &c. By John Cassin. No. 9.

Journal of the Franklin Institute, June, 1855.

A supplement to the Imperial Dictionary. Edited by John Ogilvie, L.L. D. Royal 8vo.

London Athenæum for May, 1855.

June 19th.

Entomologische Zeitung. Herausg. von dem entomolog. Vereine zu Stettin. 15 Jahrg. No. 1. From the Association.

Linnæa Entomologica. 9 Band, 8vo.

Virginia Medical and Surgical Journal for June, 1855.

Report on the Iron of Dodge and Washington Counties, Wisconsin. By James G. Percival. From Mr. J. A. Lapham.

DONATIONS TO MUSEUM

In July and August, 1855.

July 3d.

Three fragments of fossil bones; 14 specimens of a fossil Ostrea; numerous specimens Anadonta trapezialis and two species Ampullaria; 2 skins male and female Macacus nemestrinus Geoff.; 3 skins hedge squirrel; 2 species saurians, 8 serpents, 4 Batrachians, and a collection of coleopterous and hemipterous insects; all from South America. Presented by Dr. H. W. Kennedy, of Buenos Ayres.

One specimen of Lycodon unicolor from Western Coast of Africa, Isle de Dorg; and 1 Chamæleon, Fernando Po. Presented by Dr. Burtt, U. S. N.

Asterias caput medusæ from West Indies. From Mr. I. Lea.

Blast furnace cinder, with 6 and 8 sided prisms. Presented by C. E. Smith.

Rutillated quartz from Middle [illegible] m Mr. A. E. Power.

Three specimens brown Blen[illegible]e of Arseniate of Lead; Cubical Galena with Phosphate of Lead [illegible] and Blende; and Fluor Calc. Spar, from the Wheatley mine near [illegible]le, Chester Co., Pa.; two specimens of Malachite from Ambriz, Africa. [illegible]nted by Charles M. Wheatley, Esq.

July 17th.

Twenty-seven specimens of the following fishes:

Lepidosteus platostomus, Polyodon folium, Scaphyrhynchus platyrhynchus, Pimelodus cœrulescens, Centrarchus hexacanthus, Labrax multilineatus, Pomotis ——, Sclerognathus ——, Catostomus ——, Hyodon tergisus; all from St. Louis, and presented by the Smithsonian Institution.

A collection of terrestrial and marine shells, consisting of 98 specimens of 34 species, from various parts of the world; 3 specimens of a fossil Pecten and 1 of a fossil Balanus, Gorgonia, near Bay of Panama; 1 fossil Spirifer, Porto Praye, Cape de Verd Islands; 21 species of seeds from Western Africa, Madeira, &c.; 3 specimens of Gorgonia; 90 fishes, Madeira; 1 fine specimen Dendrophyllea ramea, Madeira; mass of vegetable gum resin, nest of hemipt. insects, Liberia; head of pipe fish and skin of Ray; 4 specimens Lava, from Mauna Loa, Hawaii; 4 specimens minerals, Chili; crystals sulphate of lime, Cape de Verde Islands; centipeds, scorpion, guinea worm, spiders and leeches, Africa; tubes of an Annelide, head of Mayo, collection of insects from Africa, Cape de Verde and Azores. Presented by Dr. J. L. Burtt, U. S. N.

Nine specimens of Helix hæmastoma, 3 Achatina ——, from Ceylon; fruit of Trapa bispinosa, from China; specimen of the glass coral, Hyalonema Sieboldi, from the Japan coast. Presented by Capt. H. A. Adams, U. S. N., through Dr. Goddard.

July 24th.

Coleoptera and Crustacea from Atlantic City, N. J. From Dr. Zantzinger.

Silurian Fossils from near Cincinnati, Ohio. From Theodore F. Moss, Esq.

Reptiles and a Scorpion from Caraccas. Presented by Dr. J. Cheston Morris.

August 14th.

A large mass of Water-worn Sandstone, from Big Coal River, an affluent of the great Kanawha, Virginia. Presented by Messrs. Edwin Mitchell, John M. Mitchell and L. Brognard, of Philadelphia, through Mr. W. G. E. Agnew.

August 21st.

One serpent from China. Deposited by Mr. Durand.

Three specimens of Echinus granulatus; 3 of Ophiura; 3 of Sponges, (3 species;) 2 of Corals; 6 species of Crustaceans; 6 species of Shells. From Point Judith R. I. Presented by Dr. Leidy.

September 11th, 1855.

Vice President BRIDGES in the Chair.

Letters were read—

From the Royal Academy of Sciences of Vienna, dated 1st May, 1855, transmitting their publications acknowledged this evening.

From the Royal Society of Sciences of Upsala, dated 14th Nov. 1855, acknowledging the receipt of the Proceedings of the Academy.

From the Royal Russian Mineralogical Society of St. Petersburg, acknowledging receipt of the Proceedings and Journal of the Academy, and transmitting the donations announced this evening.

From the Royal Society of Sciences of Göttingen, acknowledging the receipt of the Proceedings, and transmitting the donation announced this evening.

Dr. Leidy presented for publication in the Journal "Contributions to a knowledge of the Marine Invertebrate Fauna of the Coasts of Rhode Island and New Jersey." Referred to Prof. Haldeman, Dr. Bridges and Mr. Ashmead.

September 18th.

Vice Pre-ident BRIDGES in the Chair.

A letter was read from the Royal Bavarian Academy of Sciences, dated Munich, 8th May, 1855, accompanying the donation acknowledged at last meeting.

Also, a letter from the Imperial Society of Naturalists of Moscow, dated 22d July, 1855, giving notice of their approaching anniversary celebration.

Prof. Chas. D. Meigs communicated a paper by Prof. A. Retzius, of Stockholm, Sweden, entitled, "On artificially formed Skulls from the Ancient World;" which, being intended for publication in the Proceedings, was referred to Dr. J. Aitken Meigs, Dr. Leidy and Dr. C. D. Meigs.

Major Le Conte presented for publication in the Proceedings, the following papers: "Descriptions of new species of Astacus from Georgia;" "On a new species of Gelasimus;" "Remarks on a new species of American Cimex;" all of which were referred to the following committee: Dr. Leidy, Dr. Bridges and Mr. S. Ashmead.

September 25th.

Vice President BRIDGES in the Chair.

The committee on Dr. Leidy's "Contributions to a knowledge of the Marine Invertebrate Fauna of the Coasts of Rhode Island and New Jersey," reported in favor of publication in the Journal.

The committees on papers by Major Le Conte, read September 18th, and by Prof. Retzius, of Stockholm, read same date, severally reported in favor of publication in the Proceedings:

Descriptions of new species of Astacus from Georgia.

By JOHN LE CONTE.

A few years ago there were but three or four species of this genus known to inhabit the United States; lately Mr. Girard, in the proceedings of this Society vol. vi. page 86. has increased the number to eighteen or nineteen; but one however is from the South, A. Blandingii. I now add to this number eight more: two of them from the upper part of the State of Georgia, the rest from the low country. There are two more species which I have seen, but have not been able to obtain. What number of species are found in the rivers of the South is not yet ascertained. All those which I have seen were inhabitants of ditches, ponds and rivulets of clear water, or formed burrows in the mud of wet ground. Their extreme similarity renders it difficult to distinguish the species from each other, and this difficulty will undoubtedly increase as the number of species is multiplied. To what extent this number may reach cannot be guessed at; it appears however that when these animals come to be more closely studied, this number will be very great, and the passage of one species into another become almost imperceptible; so that among Crustaceans we shall have an analogous difficulty to that which exists among Uniones. Their color is generally lost with their life, so that it is of little value in the description. All that I have ever seen were much of the same color, a reddish-brown, inclining to a dark olive. The shape of the rostrum and of the chelæ and the size of the Areola vertebralis, afford the best characteristic marks. I have never known this last character to vary in any degree. In the two others there may occur slight differences of developement, not however so great as to be of any moment. I do not find that any marks can be definitely pointed out, by which we can distinguish those which are subterranean from those which are aquatic.

A. TROGLODYTES. Rostrum paulo concavum, obtusiusculum cum acumine parvo, utrinque unidenticulatum, qui denticulus obtusus est, sæpius obsoletus, in junioribus magis conspicuus. Lamina antennalis subdolabriformis, pedunculum antennalem æquans. Cephalothorax grosse et sparse punctatus, lateribus antice et postice paucigranulosis; linea ordinaria sulcata. Thorax supra grosse et sparse punctatus, lateribus granulosis, granulis interdum vix conspicuis. Areola suturalis medio angusta. Dorsum grosse et parce punctatum. Chela magna, lata, evasa, tuberculata margine interiore dentata; digiti costati æquales. punctati basi tuberculati, interior concavus, exterior convexus. Carpus latere interno spinis dentiformibus, numerosis, spina media majore. Brachium margine superiore serratum, superficie inferiore lineis duabus spinularum, antice utrinque spina longiore. Caudæ lamellæ intermediæ pars anterior utrinque trispinosa.

Long. 3.7. Cephalothorax 1.16. Thorax .6. Abdomen 1.4. Cauda .54. Antennæ 3. Chela .6 lat. .55, forceps .9.

Habitat in Georgia oryzaceis, ubi spiracula 4 unc. alta format.

A. BLANDINGII. Rostrum concavum acuminatum, versus apicem vix utrinque unidenticulatum, serie lateribus subcontinuis ad acuminis extremitatem. Lamina antennalis subdolabriformis, pedunculum antennalem æquans. Cephalothorax et thorax supra punctati latioribus granulosis, hic spina parva e medio marginis lateralis; linea ordinaria non sulcata. Areola suturalis angusta. Dorsum glabrum seriebus parvis punctorum transversalium. Chela longiuscula, angusta. subcylindracea, punctata cum granulis: digiti æquales. Carpus extus punctatus; intus granulatus, granuli quidam anteriores quinque aut sex spiniformes. Brachium extus glabrum, intus parte anteriore granulosum, superficie inferiore lineis duabus granulorum acutiorum, vel spinarum parvarum. Caudæ lamellæ intermediæ pars anterior utrinque bispinosa.

Harlan, Trans. Am. Phil. Soc. 3, 464; Med. and Phys. Res. 229, pl. fig. 1.

Cambarus Blandingii Er. Wiegm. Archiv, 1846, 1, 98. Girard, Proc. Acad. 6, 91.

Long. 3.5. Cephalothorax 1.16. Thorax .6. Abdomen 1.2. Cauda .54.

Habitat in Georgiæ et Carolinæ regionibus intermediis.

A. SPICULIFER. Rostrum concavum longissime acuminatum, denticulo parvo utrinque ad acuminis basin. Lamina antennalis dolabriformis, pedunculum antennalem æquans. Cephalothorax punctatus, granulis perpaucis parte inferiore lateris, linea ordinaria sulcata. Thorax punctatus spinis duabus e medio marginis lateris anterioris. Areola suturalis lata. Dorsum glabrum seriebus parvis punctorum transversalium, macula rubra in unamquamque articulationem ad latera. Chela magna lata, tuberculosa margine interiore dentata, digiti prope recti, æquales, tuberculati et punctati, non costati. Carpus tuberculatus, latere interiore tuberculis anterioribus majoribus, spiniformibus; latere inferiore seriebus duabus spinarum. Caudæ lamellæ intermediæ pars anterior utrinque bispinosa.

Long. 3.8 unc. Cephalothorax 1.3. Thorax 5. Abodomen 1.4. Cauda .6. Chela 1.43. Antenna 3. forceps .8.

Habitat in Georgiæ superiore.

A. FOSSARUM. Rostrum concavum, acuminatum, versus apicem utrinque subunidenticulatum. Lamina antennalis pedunculum antennalem æquans. Cephalothorax supra punctatus, lateribus sparse tuberculosis, linea ordinaria sulcata. Thorax supra punctatus, lateribus granulosis. Areola suturalis modica. Dorsum glabrum seriebus parvis punctorum transversalium. Chela modice lata, tuberculata, margine interiore dentata, digitis gracilibus, carinatis, punctatis, interiore concavo, exteriore rectiusculo. Carpus tuberculatus, tuberculis lateris interioris dentiformibus. Brachium punctatum, latere superiore serrato, inferiore seriebus duabus denticulorum. Caudæ lamellæ intermediæ pars anterior utrinque trispinosa.

Long 2.6 in. Cephalothorax .8. Thorax .4. Abdomen 1. Cauda .4. Antenna 1.5. Chela 1. latitud. 3. forceps .45.

Habitat in fossis Georgiæ inferioris.

A. MANICULATUS. Rostrum subplanum, vix concavum, obtusum cum acumine, versus apicem utrinque unidenticulatum. Lamina antennalis pedunculum æquans. Cephalo-thorax supra punctatus, lateribus sparsim granulosis. Areola suturalis angustissima, stria solum. Dorsum sicut in prioribus. Chela parva, angusta, tuberculato-punctata, margine interiore dentata, digiti recti, carinati, punctati. Carpus intus paucidentatus, dentibus tribus superioribus majoribus spiculæformibus. Brachium punctatum, latere superiore vix serrato, duabus tamen spinis brevibus anterioribus, inferiore seriebus duabus spinularum. Lamellæ caudalis intermediæ pars anterior trispinosa.

Long. 2 3. Cephalothorax .7. Thorax .35. Abdomen .82. Cauda .43. Antenna 1.3. Chela .5. Lat .15 forceps .3.

Habitat cum priore.

A. PENICILLATUS. Rostrum vix concavum, obtusum cum acumine. Lamina antennalis pedunculum antennalem æquans. Cephalo-thorax supra punctatus, lateribus totis granulatis, linea ordinaria sulcata. Thorax punctatus, lateribus solum antice granulosis. Areola suturalis satis lata. Dorsum sicut in prioribus. Chela latiuscula punctato-granulosa, margine interiore serrata, digitis rectis costatis. Carpus punctatus latere interiore spinoso-tuberculatus, tuberculorum quorum infimus major. Brachium punctatum, latere superiore spinoso-tuberculatum, inferiore seriebus duabus dentium. Lamella caudalis intermedia pars anterior utrumque bispinosa.

Mas latere interiore chelarum pilositatem densam habet spongiam referente.

Long. 2.6. Cephalo-thorax .8. Thorax .4. Abdomen 1. Cauda .4. Antenna 1 5. Chela 1.1, lat. .3; forceps. .45.

A. ANGUSTATUS. Rostrum concavum, valde acuminatum, utrinque versus apicem fortiter et acute unidenticulatum. Lamina antennalis pedunculum antennalem æquans. Cephalo-thorax punctatus, parcius ad latera, adeo ut vix paucis punctis notatur, linea ordinaria apice spina armata. Thorax totus punctatus, parcius ad latera, tuberculis vel granulis nullis. Areola suturalis lata. Dorsum sicut in prioribus. Chela parva, angusta, subcylindrica, punctata, sine tuberculis

aut granulis, excepto margine interiore qui paucis denticulis inconspicuis instructus est, digiti recti punctati carinati. Carpus glaber, punctis tribus vel quatuor. Brachium glabrum, spinulis paucis latere superiore: inferiore seriebus duabus spinarum, quarum duæ anteriores majores et longiores. Caudæ lamella intermedia utrinque trispinosa.

Long. 1.95 Cephalo-thorax .6. Thorax .25. Abdomen .8. Cauda .3. Antenna .9. Chela .6. latitud. .2, forceps .3.

Habitat in Georgia inferiore, in aquæ puræ rivulos qui inter colliculos arenosos (*sand-hills*) currunt.

A. LATIMANUS. Rostrum breve, concaviusculum, obtusum cum acumine parvo. Lamina antennalis brevis subdolabriformis, pedunculi antennalis articulum inferiorem solum æquante. Cephalo-thorax supra punctatus, lateribus granulosis, linea ordinaria sulcata. Thorax supra punctatus, lateribus valde granulosis, areola suturalis modica. Dorsum sicut in aliis. Chela magna, latissima, extrorsum marginata, grosse punctata, ad latus internum tuberculata, digiti æquales, recti, late costati, punctati, interiore extrorsum et introrsum, exteriore introrsum tuberculato. Carpus punctatus, latere interiore tuberculatus, spina satis magna e medio prominente. Brachium punctatum, latere superiore bi-vel-trispinosum, spinis parvis, inferiore spinarum seriebus duabus. Lamella caudæ intermedia bispinosa.

Long 3.3. Cephalo-thorax 1. Thorax .6. Abdomen 12. Cauda .5. Antenna 2.6. Chela 1.2, latit. .65 forceps .6.

Habitat in Georgia superiore.

A. ADVENA. Rostrum subconcavum, breve, obtusum cum acumine parvo. Lamina antennalis parva, articulum pedunculi antennalis inferiorem solum æquans. Cephalo-thorax supra grosse punctatus, lateribus granulosis. Areola suturalis angusta. Dorsum sicut in aliis. Chela breviuscula, latiuscula, tuberculata, margine exteriore et interiore serrata, digitis carinatis, punctatis. Carpus grosse punctatus, latere interiore spinoso-tuberculatus. Brachium latere superiore, serie unica spinarum parvarum, quæ sensim deorsim diminuuntur, inferiore seriebus duabus spinarum parvarum. Caudæ lamella intermedia utrinque bispinosa.

Long. 2.9. Cephalo-thorax .9. Thorax .5. Abdomen 1.3. Cauda .4. Antenna 1.5. Chela .85. lat. 4. forceps .45.

Habitat in Georgia inferiore.

Hyeme vitam degit subterraneam. Æstate in fossis invenitur. Differt a præcedente magnitudine; chela non marginata et digitis non tuberculatis, excepto margine interiore digiti interioris.

In all the species of this genus which have come under my observation, I have observed that the following characters are found. The lamina antennalis is dolabriform, inwardly fringed, outwardly thickened, straight and ending in a small spine. The dorsum is smooth with transverse rows of punctures. The carpus has a deep longitudinal impression. The males also have on the second and third of the small legs a tooth directed inwards, in some species only on the second.

In drawing up these descriptions it will be observed that I have preserved the old name of Astacus in preference to the new appellation of Cambarus. The very slight and not very apparent differences which have been adopted to distinguish these two genera appear to me of little moment.

On a new species of Gelasimus.

By JOHN LE CONTE.

One species only of Gelasimus has long been known as an inhabitant of our salt marshes. I now offer to the Society, the description of a second species, found on the sea coast of New Jersey. It seems hitherto to have escaped the no-

tice of naturalists. Last summer our associate Mr. Ashmead brought some from Beesley's Point, N. J., and I cannot find any description agreeing with it. All the other species in the books except one, appear to have been brought from tropical countries. I have added a detailed description of the G. pugilator or common species which is said to be found along our whole line of coast, in order that a comparison may be made between the two. This I have of course placed first.

GELASIMUS PUGILATOR, *Bosc.* Carapace smooth, shining, in front sinuous and three-lobed, the middle lobe the largest, bent down, the lateral lobes but slightly prominent likewise bent down; margined, the lateral margins ciliate; anterior exterior angles right. Back impressed as it were with the letter H, a small depressed spot generally paler colored about one fourth of the distance from the outer edge of the fore part on each side. Lower eye-lid finely serrate, cheeks and feet except the chelæ hairy. Tail strongly ciliate. Tarsi sharp, slightly curved. Color dark brownish olive, all the feet lighter colored, chelæ nearly white.

Male.—With either the right or left chela very large, inflated, margined, the inner margin of the palm bifurcate near the extremity. Palm and carpus granulate; brachium with short irregular rows of granules, the immoveable finger straight deeply grooved from the point to near the centre, with a triple row of small teeth, and one large one near the middle, the moveable finger curved, toothed like the moveable one, with sometimes three larger teeth, and slightly costate: small chela smooth the fingers nearly straight.

Length ·65; breadth anteriorly 1 inch, posteriorly ·4. Large chela 1·7, small 4.

This species which is found on the salt marshes and the edges of creeks of the sea shore in innumerable quantities, was first described by Bosc in his Histoire Naturelle des Crustacées, vol. vi. page 96, and afterwards by Say, in the Journal of our Society vol. i. page 71. From its being so common and so well known I omit saying anything on its manners. It was formerly considered the same as the G. vocans of Brazil or Amboyna. Whether it is so or not, remains yet to be determined, the descriptions of the South American or Indian animal which are to be found in the books being so imperfect, that it is impossible to decide the question.

G. MINAX. Carapace very finely granulate with a number of small tubercles near the anterior exterior angles, front as in the former species only the lateral lobes are much wider and more bent down; margined, the margin very finely serrate and ciliate on the sides; anterior exterior angle rounded. Back impressed with the letter H, with an oblique stria running from the lateral lobe of the front of the carapace on each side to the upright arms of the impressed letter. Both the eye-lids are bluntly serrate. Cheeks and feet as in G. pugilator, except the latter are paler colored, as is the tail likewise.

Male. With the right or left chela very large, inflated, outwardly scarcely margined, inwardly margined as in the former species, but the bifurcation commences lower down. Palm and carpus covered with tubercles, those on the interior edge of the latter forming a kind of crest. Immoveable finger straight with a double row of blunt teeth, which near the point are separated by an excavation for the reception of the point of the moveable finger, the middle is furnished with a single larger tooth. The moveable finger is very much curved with a triple row of blunt teeth, three of which behind the middle and two before it are larger: at each of the joints there are one or two red spots, brachium with short irregular rows of small tubercles: tail ciliate speckled with black; small chela, and feet like those of G. pugilator.

Female chelæ like the small one of the male.

Length 1 inch: breadth anteriorly 1·5; posteriorly ·65. Large chela 2 8; small, ·6.

Remarks on two Species of American Cimex.

By JOHN LE CONTE.

REDUVIUS PUNGENS. Black, shining, wings opaque. Head a little hairy, antennæ yellowish brown, slightly hairy, first joint shorter than the head, second, fourth and fifth much longer, subequal, third very small. Thorax slightly margined, strongly constricted in the middle, the anterior portion rounded and longitudinally sulcate, the posterior portion transverse. First pair of legs hairy on the under side, as are the thighs also of the second pair, but the tibiæ and tarsi of the hinder legs all over.

Length .8 of an inch. Inhabits Georgia.

This species is remarkable for the intense pain caused by its bite. I do not know whether it ever willingly plunges its rostrum into any person; but when caught or unskilfully handled, it always stings. In this case the pain is almost equal to that of the bite of a snake, and the swelling and irritation which result from it will sometimes last for a week. In very weak and irritable constitutions it may even prove fatal.

This R. pungens too nearly resembles the R. personatus of Europe to be authoritatively pronounced different. As however I can find no very detailed description of the European animal, and as it is difficult to suppose that it would be imported from its native country, and yet be found in the Southern States, I have concluded to give it provisionally the name which it bears at the head of this article. Its food consists of flies and other soft insects, which it catches very adroitly and soon deprives of all their juices.

CONORHINUS SANGUISUGA. Black, head and thorax granulate, neck rather long projecting. Antennæ slender, first joint much shorter than the head, second, fourth and fifth subequal about the length of the head, tip of the rostrum brown. Thorax triangular, with a tubercle in front on each side, slightly constricted before the middle, in front with two raised lines diverging backwards, and most raised in front, margined with red; scutellum with two raised diverging lines directed forwards and joined at the base. Wings granulate at the base, with two triangular red spots on each, one at the base, the other near the middle on the outside. Abdomen with six red spots on each side, both above and beneath.

Length 1 inch. Inhabits Georgia.

This insect, equally with the former, inflicts a most painful wound. It is remarkable also for sucking the blood of mammals, particularly of children. I have known its bite followed by very serious consequences, the patient not recovering from its effects for nearly a year.

The many relations which we have of spider bites frequently proving fatal, have no doubt arisen from the stings of these insects or others of the same genera. When the disease called spider bite is not an anthrax or carbuncle, it is undoubtedly occasioned by the bite of an insect, by no means however of a spider. Among the many species of Araneidæ which we have in the United States, I have never seen one capable of inflicting the slightest wound. Ignorant persons may easily mistake a Cimex for a spider. I have known a physician who sent to me the fragments of a large ant, which he supposed was a spider, that came out of his grandchild's head.

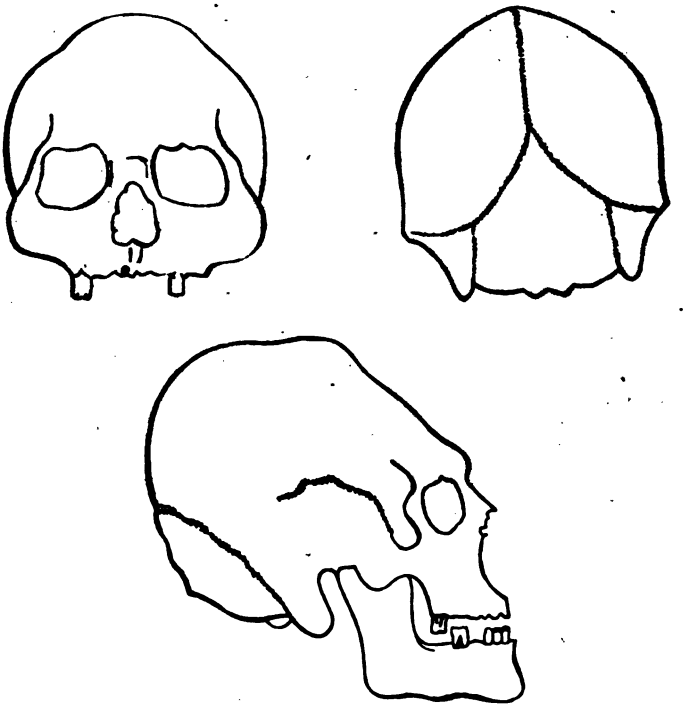
On artificially formed Skulls from the Ancient World.

By Prof. A. Retzius, (Stockholm, Sweden).

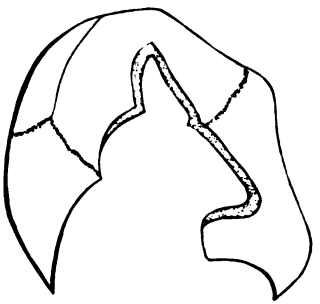
[Communicated by Prof. Charles D. Meigs.]

Several years ago the eminent anatomist, Professor Joseph Hyrtl, of Vienna, had the kindness to send me a cast of an artificially formed skull of great interest. The original, found at Grafenegg, in Austria, has, by its owner, Count August von *Brauner*, been considered as having belonged to an individual of the *Avarian Huns*, who lived in the neighborhood from the end of the seventh to the beginning of the eighth century. Of this skull I have given in 1844 a description in the Proceedings of the Royal Academy of Sciences of Stockholm, which was the following year inserted both in *Hornschuch's* Archiv Skandinavischer Beiträge zur Naturgeschichte, and in *Müller's* Archiv für Physiologie. I showed there that this skull, which had been considered remarkable for its length, certainly was extremely high, but on the contrary *short*, or of the *brachycephalic* form, to which the skulls of the Avarians, as related with those of the Finlanders, must belong. This opinion gained at the time very little approbation, because Dr. *Tschudi*, renowned for his travels and researches in South America, shortly after with so much certainty declared that the skull in question was of Peruvian origin, and supposed that it had been brought over from Peru to Austria with other collections. *Tschudi's* opinion gained many adherents, and the question about the custom in the ancient world of forming the head artificially sank for some time in oblivion. Through a very excellent treatise by Doctor *Fitzinger*, in the Transactions of the Imperial Academy in Vienna, it has been shown that the skull found at Grafenegg must undoubtedly have belonged to an individual of the ancient inhabitants of the country. He has not only wholly explained all important circumstances concerning this skull, but has also got a quite similar one from Atzgerrsdorf, in south Austria 1¼ mile from Vienna. This had been dug out of the earth in presence of the physician of the place, *Müller*. This skull, as well as the original of the one first mentioned, are now at the Imperial anatomical museum at Vienna. The author shows the resemblance between these skulls and those which have been found at Krim and described by Messrs. *Ratke* and *Charles Meyer*. He mentions the account of *Hippocrates* (de aëre aquis et locis Lib. 1,) about the macrocephali or Scythians in the neighborhood of the Mœtian moor, who had artificially formed skulls. Further he quotes *Pomponius Mela* (de situ orbis Lib. 1. chap. 19), who says that the custom of changing the form of the head reigned also among the inhabitants of the Bosphorus; *Pliny* the older, who accounts for the macrocephali in the neighborhood of Ceresus in Natolia on the coast of the Black Sea, the Keresum of the present day; also *Stephanus Byzantinus* (Geographica,) who tells us of macrocephalic Scythians among the inhabitants of Colchis, now Mingrelia, on the east coast of the Black Sea. He quotes from *Strabo* (Lib. II, Chap. 16), the Derbikks on the Caucasus, towards the Caspian sea, and the Sigyns, Median colonists, who are said to have lived in the valley of the Danube at the river Taler, as nations who have used to change the form of the head, so that the forehead was thus put forward. Doctor *Fitzinger* mentions also another circumstance of importance in connexion with the description of these skulls, namely, a medal of unknown origin, representing the destruction of the town of Aquileja by *Attila*, with *Attila's* head in *profile*, with the same form as the skulls of Avarians before mentioned. The same medal in gold is preserved in the royal medal cabinet at Stockholm, where the Rep. has had the opportunity to see it, and to agree with Dr. *Fitzinger*. Beside these important informations respecting the singularly formed heads of the Avarians, this excellent treatise contains also a close examination of the human skulls found in the forest of Vienna in the Calvarian mountain, which were described in 1830 by Count Rasumowsky in Oken's Isis, as having an extraordinary form, and which the Rep. in his former treatise did unjustly believe to be of the same form as the Avarian skulls. Dr. *Fitzinger* has examined these heads and has found that they are of the Slavic form. This learned treatise is furnished

with four extremely good illustrations, two of which represent skulls of Avarians and the other Slavic ones from the mount of Calvaria. A perfect harmony with the before mentioned skulls of Avarians is shown in a head found in Switzerland, of which M. *Troyon* has sent drawings to the Rep.; copies of them are here represented reduced to a quarter's size.



The original is preserved in M. *Troyon's* archeologic collections at Bel-air in the Canton Vaud near Lausanne. The skull was found at the bottom of a tomb of very high age, no ornaments or tools were in the neighborhood. Of more than 200 tombs which have been examined by M. Troyon, this was the only one of that kind.



M. *Troyon* has on the same occasion given several informations concerning discoveries of other skulls of the same singular form at the village St. Romain in Savoy, in similar tombs, likewise without ornaments and tools. These skulls were so fragile that they fell in pieces shortly after they had been dug out of theearth. Nevertheless, Dr. *Gosse*, at Geneva, has succeeded in preserving the upper part of one. The Rep. has through the kindness of Mr. *Troyon* got the opportunity here to show a drawing *in quarter* size.

There is no doubt that these skulls have belonged to the same nations as the above

mentioned skulls from Austria that is, from Avarians, who probably accompanied Attila's army. In connexion with this it deserves also to be mentioned, that Professor *Duvernoy* at Paris has sent to the Rep. a drawing and description of a high brachycephalic skull of very remote age, which was found in 1849, not far from the surface of the earth during the digging of a road in the valley of the Doubs, not far from Mandeuse. Professor *Duvernoy* is himself of the opinion that it must have belonged to one of Attila's warriors, because in this neighborhood the ruins of an old Roman town destroyed by *Attila* is situated. It has exactly the form of a Finländian skull not pressed. What a consternation did the deformed skulls of Huanches Indians, which Pentland brought from Titicaca in Peru, not excite? What a surprise to see the various skulls which were so changed in form, and were first made known by *Morton's* work, Crania Americana! This absurd and barbarous custom was considered to belong only to the savage heathens of America. Through the skull found at Grafenegg, attention has been turned to the question, how far this same barbarous custom has reigned also in the ancient world; more and more evidences affirming this opinion have been found. As is above seen, we have had the proofs of this fact in the ancient authors from the old and middle ages, without taking notice of them. To the important dates quoted by Dr. *Fitzinger* and M. *Troyon*, the Rep. takes the opportunity to add some more. In the excellent historical work by Amédeé *Thierry*, *Attila*, of which the Rep. only knows Dr. Edward *Burckhardt's* translation, (*Attila* Schilderungen aus der Geschichte des fünften Jahrhunderts, Leipzig, 1852,) is mentioned, where the author has shown, that the proper Huns were Finlanders from the Ural and the valley of the Wolga, but that with them were under the same government, Turks, and probably Mongols, beside later Slaves, etc., and that Attila himself, and part of his people have been delineated as belonging to the Kalmuck type. In a note, page 15, about the custom of changing the form of the head, he has the following: "The image of Attila is more like that of a Mongol than of a Finlander from the Ural. Besides we know that the Huns used artificial means for giving Mongolian physiognomy to their children; they made, namely, the nose flat, with firmly strained linen ribbons, and pressed the head to make the cheek bones projecting. What could be the reasonable cause of this barbarous custom, if not the effort to approach a form, which, among the Huns, was held in greater regard, in a word, the aristocratic race? The purpose quoted by the Roman authors, to get the helmet better fixed on the head, is scarcely credible. It seems more probable, that when the Mongols were masters of the Huns, the Mongolian physiognomy was the prize attached to aristocratic distinctions; they consequently tried to approach this form, and considered it an honor thus to deform themselves, in order to resemble the reigning nation. This is most likely the cause of those unnatural deformations which historical writers so particularly describe." This opinion agrees fully with that which the Rep. has supposed in his treatise "*Phrenology judged from an anatomical point of view*," and also with Prof. Eschricht "*Angaaende Betydningen af Hjerneskallens og hele Hovedets Formforskjellighed* (Skand. Naturf. Sällsk. Forhandl.") respecting the same custom among the American savages. Thus we see more and more traces showing that this absurd custom formerly has been considerably common in the ancient world, and, after the authority of *Thierry*, we may suppose, that it principally and perhaps originally belonged to the Mongols, among whom the Rep believes it has now ceased. Many who are interested in the study of skulls will surely be greatly astonished to hear, that this barbarous custom still exists in one of the most civilized countries of Europe, namely, in France. About this we have very interesting information in Dr. *Foville's* "Traité complet de l'anatomie, de la physiologie et de la pathologie du système nerveux cérébrospinal. 1e partie, Anatomie. Paris, 1844, page 632, art. "Déformation artificielle du crâne" etc.; et Atlas, Pl. 23, figs. 1, 2."

Dr. *Foville* says namely: "Dans plusieurs parties da la France, on coiffe les nouveaunés de bonnets fixés sur la circonférence du crâne lui-même. Tantôt on commence par l'entourer d'un étroit et long triangle de toile, qui décrit plusieurs tours avant d'être arrêté, et par dessus ce serre-tête on bandeau on place un bonnet rond à coulisses, dont les cordons sont serrés suivant une

circonférence que ce serre-tête lui-même. Cette pratique est très commune en Normandie. Dans d'autres provinces on ne commence pas par entourer la tête d'un bandeau; on la couvre d'un bonnet rond, et ce bonnet se trouve ensuite assujetti par un nombre variable de tours de bande méthodiquement jetés depuis les bosses frontales jusqu'aux bosses parietales. C'est ainsi qu'on agit à Toulouse et dans une grande étendue des pays voisins. . . . . Une constriction circulaire, suffisante pour fixer la coiffure ne peut manquer de faire céder la tête si tendre á cet âge. Ce qu'elle perde alors en largeur, elle le gagne en exces de longueur; et c'est ainsi que se trouvent produits ces crânes allongés et cylindroïdes, (voy. pl. 22 et 23, fig. 1), quelquefois même étranglés dans le milieu de leur longueur, qu'on rencontre en proportions variables dans presque toutes les maisons d'aliénés de France, mais surtout dans celles des départements où la methode adoptée pour la coiffure des enfants implique une constriction circulaire. On trouve des personnes du Limousin, de Bretagne, du Nord et du Nord-Est de la France avec une déformation évidente du crâne dont la cause ne peut être douteuse. . . . A Paris, ou se trouvent rassemblés des habitants de toutes les parties de la France, toutes les habitudes de nos provinces se trouvent importées, et les déformations du crâne produites par les coiffures vicieuses ne sont nullement rares."

The 23d engraving in Dr. *Foville's* work shows three side-faces of women whose skulls are formed very like the Hunish. Dr. *Foville* has, in quality of chief-physician at the great asylums for insane in the Department Seine-inférieure and Charenton, had occasion to examine the skulls of a great number of country people. Here he has found several individuals with thus artificially formed heads. Though he expresses the opinion that the deformity does not disturb the functions of the brain, he believes that it does not seldom promote disorders which finally cause mental derangement. This does not agree with *Morton's* opinion about this circumstance among the American Indians. It is more probable that the worthy author here has taken post hoc for propter hoc. He mentions two different manners of constricting the head. It seems not probable that this custom is intended for changing the form of the head; it rather seems as if it remained unconsciously from the time of Paganism, and will as many other prejudices, first cease by some particular accident. The inhabitants of Normandy were Norwegians; the race which before inhabited the country is probably not yet extinct. On the contrary we believe that here, as in many other countries, the ancient population lives beside the more aristocratic conquering nation. This latter, the Rep. has himself had occasion to observe, keeps still the true Norman type. Doctor *Foville* himself, of Normannic family, is a beautiful proof of this. The Rep. does not believe that the pressing of the head does derive from the Norwegians. The skulls of fig. 1, 2, tab. 23 of his work, do not show the least resemblance with the Norwegian dolichocephalic ones; but rather seem to be brachycephalic. The skull, tab. 22, is, according to the opinion of the Rep., of genuine gaulic type, low, long, dolichocephalic, not artificially formed. It was taken in a churchyard at Paris, and we know nothing about the person it has belonged to. It is worthy of attention that this custom is common in Bretagne, the old county Toulouse, and in several places where the Celtic race is the predominant one, these countries have before been inhabited by Celts and first by Iberians. In Bearn, where the Iberian race is the most numerous, the constriction of the head is, according to Dr. *Foville's* account, not used. After all these facts have been mentioned, the question naturally arises: Has this custom arisen by itself separately in the Old and New World, or does it not bear witness of a communication between the New and Old World? The Rep. hopes on some other occasion to return to the question.

ELECTIONS.

Mr. George H. Humphreys and Mr. Hilborn West, of Philadelphia, and Mr. C. J. Hering, of Surinam, were elected *Members*, and

Mr. Guido Sandberger and Dr. Fredolin Sandberger, of Wiesbaden, were elected *Correspondents*.

October 2d.

Vice President LEA in the Chair.

Dr. Rand remarked relative to the specimen of Cyanide and Nitride of Titanium, presented this evening, that it was obtained from the Salamander of a blast furnace at Spring Mill, from a mass estimated to weigh over a ton.

Mr. Isaac Lea read an extract from a newspaper, relative to the supposed human foot-prints in the New Red Sandstone of Middletown, Conn. The article was written by Prof. B. Silliman, Jr., who believes the impressions to be due to curvature of the strata at the time of formation, and not to be tracks. Prof. Johnston believes them to be tracks, but they are certainly not human.

October 9th.

Vice President BRIDGES in the Chair.

Letters were read—

From Sênor F. A. Sauvalle, of Havana, dated 25th July, 1855, acknowledging the receipt of his notice of election as a Correspondent, and transmitting the donations announced this evening.

From the Imperial Royal Institute of Science, &c., at Milan, dated 22d June, 1855, acknowledging the receipt of the Proceedings, and transmitting its publications in exchange.

From the Imperial Academy of Sciences of Bordeaux, dated 26th Dec., 1854, acknowledging the receipt of the Proceedings, and transmitting its publications.

From the Imperial Society of Naturalists of Cherbourg, dated 14th Nov., 1854, acknowledging the receipt of the Proceedings.

Mr. Ashmead presented a paper for publication in the Proceedings, entitled "Catalogue of Marine Algæ, from Beesley's Point, N. J., with some remarks." Referred to Dr. Leidy, Dr. Zantzinger and Mr. Durand.

On motion, it was unanimously resolved, that the thanks of the Academy be presented to Sênor F. A. Sauvalle, of Havana, for the donation of Shells received from him, and announced this evening.

October 16th.

Vice President BRIDGES in the Chair.

Letters were read—

From the Royal Danish Society of Sciences, dated Copenhagen, 8th May, 1855, accompanying their donation announced this evening, and also acknowledging the receipt of the Proceedings.

From the Royal Academy of Sciences of Stockholm, dated 23d Oct., 1854, and 31st May, 1855, accompanying their donation.

Dr. Leidy presented a paper for publication in the Proceedings, en-

titled "Indications of five species, with two new genera of extinct Fishes." Referred to Mr. Cassin, Dr. Le Conte and Dr. Henderson.

Mr. Cassin announced that M. Duchaillu was about to return to Western Africa, for the purpose exclusively of geographical exploration, and the collection of objects of Natural History. Arrangements have been made to secure, for the cabinet of this Society, the collections of Birds especially, and also of some other objects. Mr. Cassin explained the general design of the Expedition, which was to pass from Cape Lopez, 1° S. latitude, towards the supposed source of the Congo river, with the intention of attempting to reach its source.

M. Duchaillu has already penetrated farther into the interior of this part of Africa than any other white man. The coast is unknown farther inland than from twenty to twenty-five miles, except to slavers, there having been no exploration of that part of Africa. M. Duchaillu had been on the Rivers Moonda and Mouni, had traced the latter to its source, and had ascertained the existence of high mountains, probably a continuation or spur of the Atlas range, and much further south than is to be found in any published maps.

Another fact ascertained by him, is the existence of a very populous nation, of marked negro character, known as the Powein Nation, which he estimates at from five to seven millions. Their country extends across from the sources of the Moonda, probably to the sources of the Nile, and the nation is probably that mentioned by Bruce, as occasionally descending the Nile. It is a warlike and cannibal nation, engaged in agriculture, not wandering, resembling in this respect the Ashantees and Dahomeys. It displays the highest degree of civilization yet observed among the true negroes, presenting an analogy to the Feejees, among the Oceanic nations. M. Duchaillu possesses peculiar advantages as an explorer. He has lived long in the country, is entirely acclimated, speaks well two of the languages, and understands thoroughly the negro character. He proposes to proceed merely with convoys of natives from each tribe successively to the next.

At the suggestion of Dr. Leidy, a Committee was appointed to solicit contributions from the Members of the Academy, to aid the Expedition.

October 30th.

Vice President BRIDGES in the Chair.

The Committees on Mr. Ashmead's paper, read 9th inst., and on Dr. Leidy's, read 16th inst., severally reported in favor of publication in the Proceedings.

Catalogue of MARINE ALGÆ, *discovered at Beesley's Point during the past summer, with some remarks thereon.*

By SAMUEL ASHMEAD.

Beesley's Point is situated in Cape May County, N. J., on the southern side of the Great Egg-Harbor Bay, about three miles from the ocean. The bay is about four miles in length, with an average breadth of two miles, when it connects with the inlet at the Beach. The water (with the exception of the channels) is

shoal, interspersed with sedge islands, sand-bars, oyster and clam beds. The main channel, is deep, narrow, and crooked; and to a person unacquainted with the course, difficult to navigate.

Connected with the bay, on the south, is a flat called "Bond's-bar," containing some hundreds of acres, which, on the recess of the tide, is left nearly bare.

A vigorous growth of *Zostera marina* occupies a large portion of this bar.

A narrow channel half a mile in length, and leading into "Little Bay" on the south, separates this bar from the main land, which is Beesley's Point. "Little Bay," when viewed from the main land at high water, presents the appearance of a lake, a mile in length, and nearly the same in width. The water is shoal, and when the tide is out, a mud-flat of considerable extent is left bare.

At the head of Little Bay, is a thoroughfare extending south, parallel with the coast line, and navigable for boats to Cape Island. This thoroughfare is frequently branched, forming islands, and sometimes extends into wide bays. It connects with the sea by various inlets, the most important of which is Corson's, Townsend's and Hereford, forming narrow islands known as "Beaches," and called respectively "Peck's Beach," "Ludlum's Beach" and "Leaming's Beach."

The sea along the sandy coast is shallow, and the action of the breakers violent, which, together with frequent heavy gales from the north east, render it peculiarly unfavorable for the growth of marine vegetation. Yet when we explore the inlets, the thoroughfares, and the land-locked bays with their coves, secure from the violence of winds and waves, we find them far from being so unprolific as they might seem. The sandy-mud bottoms of these shallow waters will be found carpeted with the beautiful membranous expansions of the *Ulva latissima*, mingling with the elongated fronds of *Enteromorpha intestinalis*, whilst a luxurious growth of *Zostera marina* affords a resting-place for the floating spores of the gaudy Rhodosperms.

The total absence of rocks, or stones of any kind, (save a few small pebbles on the southern shore of the Great Egg-Harbor Bay) produces an unceasing demand for a favorable place for the future growth and propagation of species.

Hence, every submerged substance suited to their condition, is immediately invested not only with *Algæ*, but with *Sertularia* and various other *Zoophytes*.

The limited number of the species of marine *Algæ* at Beesley's Point must be attributed to the want of a suitable place, or foot-hold for development, as the climate and the water, it would seem, supply all the other conditions favorable to their growth.

The following catalogue, embracing five MELANOSPERMS, nineteen RHODOSPERMS, and six CHLOROSPERMS, are all that I have as yet been able to detect. A more careful search may probably supply a few more species.

In the classification, and names of the species, I have followed that eminent Algologist, Hon. Wm. H. Harvey, in his "*Nereis Boreali-Americana*," published by the Smithsonian Institute at Washington.

Series I. MELANOSPERMEÆ.

FUCUS VESICULOSUS, *Linn.* Very common between tide marks, on the shores of the Bays, and the thoroughfares; not unfrequently attached to sods by a root penetrating several inches into the soil, throwing off numerous lateral shoots having the appearance of undeveloped fronds, forming a strong hold-fast, and affording an interesting illustration of the modification of a discoid root, where local circumstances are unfavorable to such expansions. It is, however, more frequently found adhering by a conical disc to mussels, (*Modiola plicatula*) which, at high water, unable to resist the buoyancy of the full grown plant with its inflated vesicles, are, by degrees, wrested from their place of growth and cast upon the shore to perish, when the *Fucus* together with other marine plants are carried away by the inhabitants for manure.

STILOPHORA RHIZODES, *J. Ag.* Rather rare; on old shells, &c, near low-water mark. The few specimens which I obtained are fertile, of vigorous growth, and densely covered with wart-like fructification.

ECTOCARPUS LITTORALIS, *Lyngb.* Very abundant in the Bays, on various submerged substances. Also fringing the steep banks of the thoroughfares between tide marks. Disappearing in July.

ECTOCARPUS SILICULOSUS, *Lyngb.* Occurs sparingly on the shores of Little Bay, on *Fucus vesiculosus.*

ECTOCARPUS VIRIDIS, *Harv.* Common in the Bays, on *Zostera marina*, &c. Disappearing in July.

Series II. RHODOSPERMEÆ.

CHONDRIA DASYPHYLLA, *Ag.* Plentiful in Little Bay, and on "Bond's Bar," growing in large tufts on the sandy mud, to which it is attached by a fibrous root.

CHONDRIA BAILEYANA, *Mont.* Common with the above.

POLYSIPHONIA OLNEYI, *Harv.* Rare, on *Zostera marina* in "Little Bay."

POLYSIPHONIA HARVEYI, *Bailey.* Very abundant in the Bays, and on Bond's Bar; on *Zostera marina.*

POLYSIPHONIA VARIEGATA, *Ag.* Very common, on *Zostera marina*, also attached to the mud by a fibrous root.

POLYSIPHONIA NIGRESCENS, *Grev.* I collected fine specimens of this most variable plant, in fruit, in the month of May. It occurs in great abundance in Little Bay, attached to the bottom by a fibrous root.

CHAMPIA PARVULA, *Harv.* Plentiful in Little Bay, on *Zostera marina.*

GRINNELLIA AMERICANA, *Harv.* Of this beautiful plant I only found a solitary perfect specimen. It was growing in the Great Egg-Harbor Bay near the shore, attached to the bottom by a somewhat fibrous root. The frond consists of a leaf-like expansion, four inches long, and two inches wide. Several leaflets, in as many stages of development, spring from the base of the midrib, giving evidence of vitality.

I had previously discovered fragments of this interesting plant, cast ashore near the inlet, and also in the Great Egg-Harbor Bay, one of which I sent to Professor Bailey of West Point, who suggested that it was a drift specimen, probably from the narrows of New York Bay, where it occurs abundantly. Notwithstanding that these fragments may have been stragglers, I have had sufficient evidence that this species is an inhabitant of Beesley's Point, and therefore give it a place in my catalogue.

GRACILARIA MULTIPARTITA, *J. Ag.* Plentiful, particularly fine on planted oysters in Little Bay.

SOLIERIA CHORDALIS, *J. Ag.* Very common on all the shores. There can be no doubt, but this bushy plant will grow and flourish in the coves of Little Bay, and other sheltered situations, without a foothold, for I have rarely found it attached to the bottom.

CHYLOCLADIA BAILEYANA, *Harv.* Frequent on *Zostera marina*, *Ulva latissima*, &c.

SPYRIDIA FILAMENTOSA, *Harv.* Particularly abundant and vigorous in the Bays; where, sheltered from the winds and waves, like the *Solieria chordalis*, it will luxuriate without the slightest attachment to the bottom.

CERAMIUM RUBRUM, *Ag.* This plant, in all its perplexing varieties, is found on *Zostera marina*, rather abundantly.

CERAMIUM DIAPHANUM, *Roth.* Occurs sparingly associated with the above.

CERAMIUM FASTIGIATUM, *Harv.* In dense tufts, on *Zostera marina*, rather rare.

CALLITHAMNION BYSSOIDEUM, *Arn.* Frequent on *Zostera marina*, also attached to old shells in Great Egg-Harbor Bay.

CALLITHAMNION POLYSPERMUM, *Ag.* Rare, on old shells in Great Egg-Harbor Bay.

GELIDIUM CORNEUM, *var.* γ. *pinnatum*, *Grev.* I obtained two or three specimens of this plant in Little Bay, on old shells, near low-water mark.

I close the list of Rhodosperms with some remarks on an interesting plant, for which, as yet, I have no name. I obtained upwards of twenty specimens of this *Alga* during July and August. They were cast ashore near the inlet of Great Egg Harbor Bay, parasitical on *Ulva latissima*, *Zostera marina*, and *Gracilaria multipartita*, associated with *Chylocladia Baileyana*. I sought diligently for fertile specimens, but without success.

This plant, in the articulations of the frond, shows a tendency towards *Griffithsia setacea*, from which, however, it differs greatly in some of its other characters.

The branching of *G. setacea* is on the dichotomous model, and the axils are acute, whilst in this plant the branching is irregular, showing a tendency to secund ramification, and the axils are obtuse, particularly in the ramuli, where they are found to be almost horizontally patent, which is sufficient to distinguish it from *G. setacea*.

Perhaps one of the most remarkable characters of this *Alga* is that the ramuli generally issue from the middle of the internodes, which, according to Harvey, would exclude it even from the Order *Ceramiaceæ*, to which the genus *Griffithsia* belongs.

Under the natural character of the Order *Ceramiaceæ*, Harvey remarks as follows: "In the simpler species, the frond consists of an articulated filament, formed of a number of cylindrical *cells* or *articulations*, placed end to end. This filament is either dichotomously or pinnately branched, the branches being similar to the main stem, and always springing from the upper part of each internode (or articulation) either from its shoulder, or from a short distance below that point." See NEREIS BOREALI-AMERICANA, page 206.

These different characters have been made available by Algologists for the purpose of classification, and if they are to be regarded as of primary consequence, this plant is certainly new to our coast, if not to science.

The following are some of its principal characters, which may serve to distinguish it, until fertile specimens shall be obtained. Frond terete; tubular; monosiphonous; rosy-red; two to four inches long; not much thicker than a human hair; soft but not gelatinous; does not readily decompose in fresh water, nor adhere strongly to paper in drying. Conspicuously articulated throughout; the lower articulations many times longer than their diameter; internodes more or less swollen; nodes consist of narrow pellucid bands, on either side of which is a ring of deep crimson, gradually fading towards the central region of the internode.

The branching irregular; sometimes showing a tendency to secund ramification; branchlets beset at unequal intervals with secund, spindle-shaped ramuli, half a line to four or five lines in length, frequently horizontally patent, generally issuing from the middle of the internodes, and sometimes much attenuated at the point of insertion.

Apices furnished with several whorls of exceedingly minute dichotomous hairs, only visible under the microscope.

Series III. CHLOROSPERMEÆ.

BRYOPSIS PLUMOSA, *Ag.* Not common; attached to old shells and other submerged substances on the shore of Great Egg Harbor Bay.

CLADOPHORA FALCATA, *Harv.* Occurs plentiful in Little Bay.

ENTEROMORPHA COMPRESSA, *Grev.* Very common everywhere; infesting the small pebbles on Great Egg Harbor Bay.

ENTEROMORPHA INTESTINALIS, *Link.* Abundant in Little Bay, and on Bond's Bar. Frequently found floating in large quantities in the Bays.

ULVA LATISSIMA, *Linn.* Common with the above.

PORPHYRA VULGARIS, *Ag.* Very rare. I have obtained but two or three specimens of this Alga, on *Zostera marina* in Little Bay.

Indications of five species, with two new genera, of extinct Fishes.

By JOSEPH LEIDY, M. D.

1. SICARIUS EXTINCTUS, Leidy.—A species of a new genus, most probably of fishes, but it may be of reptiles. It is founded upon the specimen of a tooth, or it may be a scale or a spine; and it consists of two portions. The body has much the form of the scales of the *Manis*, but is surrounded at base with a thick collar marked with close parallel ridges. The breadth of the body in its perfect condition has been 15 lines; its depth on the convex side 9 lines, and on the vertical slightly concave side 11 lines. The root is 10½ lines in breadth and narrow towards the extremity, which is broken off, and it measures on one side 6 lines and on the other 4½ lines in length.

The specimen was obtained from a black stratum, belonging to the coal series, in number 13 of Rogers, at the head of inclined plane No. 3, of the old portage portion of the Pennsylvania Railroad. It was presented by Townsend Ward, Esq., to Charles A. Poulson, Esq., from whom Mr. Conrad borrowed it for my inspection.

2. EDESTUS VORAX, Leidy.—A species of a new genus of fishes, founded on the fragment of a jaw with portions of four teeth. The fragment of jaw is 3 inches in breadth by 10 lines in thickness at the dental border, and nearly double that thickness at the opposed border, which is convex. It is composed of four wedge-like segments excavated at base, so that those posteriorly are inserted into those anteriorly, and each has a tooth coossified at the narrower border in the same plane as the broad surfaces of the specimen. The teeth resemble those of *Charcharodon*, and in their perfect condition have been about 2 inches long, and have had nearly the same breadth at base. They have strongly and coarsely dentated borders, and are thinly coated with enamel.

In relation to the affinities of the singular fish to which the fragment belonged and its exact position in the skull, I suspect it to have been a portion of the upper jaw of a genus allied to *Lepidosteus*, from the circumstance that the latter, in like manner, has the upper jaw composed of a number of distinct segments.

The specimen is most probably from the carboniferous series, and it was obtained by William S. Vaux, Esq., from an itinerant showman, who found it at Frozen Rock, Arkansas River, 20 miles below Fort Gibson, in the Indian Territory.

3. ORACANTHUS VETUSTUS, Leidy.—This species is founded on an ichthyodorulite, the body of which in its perfect condition has been about 6 inches in length, and it measures 2½ inches in breadth at base. The broad surfaces and slightly concave border are thickly covered with mamillary tubercles arranged in very irregular, transverse rows, and unsymmetrically on the two broad sides.

The specimen is from Missouri Territory, and formerly belonged to Mr. Conrad's collection now in possession of this Academy. Adhering to its base there is a portion of black shale with a partially imbedded segment of an encrenite stem, which Mr. Conrad considers as fixing the specimen in the carboniferous series.

4. PRISTIS CURVIDENS, Leidy.—This species is based on a single tooth 5 inches long by 8 lines wide at the point of exsertion. The posterior border at its thickest part is 4½ lines, is straight throughout, and only at its outer two-fifths is slightly depressed. The anterior border is convex; and the tooth is considerably curved downward.

The specimen was discovered by W. Taylor, Esq., in the Green Sand, near Pemberton, New Jersey.

5. PRISTIS ENSIDENS, Leidy.—This species is founded on numerous specimens of teeth, of which the largest in their perfect condition have been about 1½ inches long by 7½ lines broad at base. They are straight and have both borders equally acute and convex.

The specimens were discovered by Capt. Bowman, U. S. A., in the sands of Ashley River, South Carolina.

Mr. Rene La Roche Jr., and Dr. Samuel Lewis, of Philadelphia, were elected *Members*.

DONATIONS TO LIBRARY

In July and August, 1855.

July 3d.

Transactions of the Albany Institute. Vol. 3, and part 1, vol. 4. From the Institute.

Proceedings of the California Academy of Natural Sciences. Vol. 1, pp. 1—46. From the Academy.

Annual Report of the Trustees of the State Library of New York, March, 1855. From the Trustees.

Sixty-eighth Annual Report of the Regents of the University of the State of New York, March, 1855. From the Regents.

Eighth Annual Report of the Regents of the University of the State of New York on the condition of the State Cabinet of Natural History, Jan., 1855. From the same.

American Journal of Science and Arts, July, 1855. From the Editors.

Martin Behaim, the German Astronomer and Cosmographer of the times of Columbus. An Annual Discourse before the Maryland Historical Society, Jan. 25, 1855. By John G. Morris, D. D. From the Author.

July 17th.

Prodromus Systematis Naturalis Regni Vegetabilis. Auctore Alph. De Candolle. Parts 11, 12, and 13, 4 vols. 8vo.

Principes d'Ostéologie Comparee. Par Richard Owen. 8vo. From the Author.

Chemical Examination of the Bakers' Bread of Philadelphia. By C. M. Wetherill, M. D. From the Author.

The following were presented by Dr. Wilson on the usual condition :—

Annals and Magazine of Natural History, June, 1855.

London, Edinburgh and Dublin Philosophical Magazine, June, 1855.

Traité de Palæontologie. Par T. J. Pictet. Tome 3, 8vo. and Atlas 4to.

Histoire Naturelle des Mollusques Terrestres et Fluviatiles de France. Par A. Moquin-Tandon. 2e. liv.

L'Organisation du Regne Animal. Par Émile Blanchard. 10e. liv. Folio.

Schreber, "die Säugthiere." Fortgesetzt von Wagner. Supplementband. 3 Abth. 10, 11 lief.

Conchologia Iconica. By Lovell Reeve. Nos. 141, 142, 143.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Von W. Dunker und H. von Meyer. 5 band, 1ste lief.

Annales des Sciences Naturelles. 4me. serie, tome 3, No. 1.

Revue et Magasin de Zoologie, 1855. No. 5.

Comptes Rendus. Tome 40. Nos. 21, 22, 23, 24.

Bonplandia. Zeitschrift für die gesammte Botanik, 1855. No. 10.

London Athenæum for June, 1855.

Journal of the Franklin Institute for July 1855.

July 24.

New York Quarterly. Vol. 4, No. 2, July 1855. From the Editors.

Virginia Medical and Surgical Journal, July, 1855. From the Editors.

Fungi Caroliniani exsiccati. Fungi of Carolina, illustrated by natural specimens of the species. By H. W. Ravenel. Fasc. 2. 4to. From the Author.

The Great Tree on Boston Common. By J. C. Warren, M. D. 8vo. From the Author.

August 7th.

A Memoir on the Extinct Sloth Tribe of North America. By Joseph Leidy, M. D. 4to. From the Author.

Notice of Producti found in the Western States and Territories ; Notice of the Genus Chonetes, from the same ; Notice of Fossils from the Carboniferous

Series of the same. By J. G. Norwood and Henry Prattea, of the Illinois Geological Survey From the Authors.

Archives de Physiologie, de Therapeutique et d'Hygiene. No. 2, Oct., 1854.

Memoir sur l'action therapeutique et physiologique des Ferrugineux. Par T. N. Quevenne. 8vo. From the Author.

Geological Map of Wisconsin. By J. A. Lapham. From the Author.

Abhandlungen der Philosophisch-philolog. Classe der k. bayerischen Akad. der Wissen. Vols. 1—6, and No. 1, Vol. 7. 4to. From the Bavarian Government, through C. F. Hagedorn, Esq., Consul for Bavaria at Philadelphia.

Abhand. der Historischen Classe der k. bayer. Akad. der Wissen. Vols. 1—6, No. 1, vol. 7. From the same.

Abhandl. der Mathemat.-Phys. Classe der k. bayer. Akad. der Wissen. Vols. 1—6, No. 1, vol. 7. From the same.

Monumentorum Boicorum Collectio Nova. Vols. 1—9. 4to. 1828—1853. From the same.

Annalen der k. Sternwarte bei München. Von Dr. J. Lamont. Vols. 1—6. 8vo. From the same.

Bulletin der k. Akad. der Wissen. 1849—1853. From the same.

Beobachtungen des Meteorologischen Observatoriums auf dem Hohenpeissenberg von 1792—1850. Von Dr. J. Lamont. From the same

The following were presented by Dr Wilson on the usual condition :—

Zeitschrift für Wissenschaft. Zoologie. Herausg. von C. T. von Siebold und A. Kölliker. Vol. 7, Nos. 1, 2; vol. 6, Nos. 1, 3, 4; vol. 5, Nos. 1, 2, 3, 4; vol. 4, Nos. 3, 4.

Annales des Sciences Naturelles. 4me. serie, tome 3, No. 2.

Comptes Rendus. Tome 40, Nos. 25, 26.

Untersuchungen über die Entwickelung der Wirbelthiere. Von Robert Remak. Folio.

Die Adergeflechte des Menschlichen Gehirnes. Von Dr. Hubert Luschka. 4to.

Die Grundsatze der Agricultur-Chemie. Von Justus von Liebig.

Ueber die Befruchtung und Keimung der Algen. Von Dr. N. Pringsheim.

August 21st.

Acadian Geology: an account of the Geological structure and mineral resources of Nova Scotia, &c. By J. W. Dawson. 8vo. From the Author.

A Catalogue of the Birds in the Museum of the Hon. East India Company. Vol. 1. 8vo. From the East India Company through Dr. Horsfield.

Fungi Caroliniani exsiccati; fascic. 3. By H. W. Ravenel. From the Author.

Virginia Medical and Surgical Journal for August, 1855. From the Editors.

Natuurkundig Tijdschrift voor Nederlandsch Indie. Uitgegeven door de Natuurkundige Vereeniging in Nederlandsch Indie. Deel 7, nieuwe serie, deel 1, af. 5, 6. From the Association.

DONATIONS TO MUSEUM

In September and October, 1855.

September 4th.

Capybara; Howling Monkey; two bats; two specimens of Testudo carbonaria. Kinosternum; Crocodile; two specimens of Pipa, one of Hyla; Boa and three other serpents; six snouts of the Saw-fish (Pristis); jaws of the Tapir. Dasyprocta; and eggs of Testudo carbonaria. Presented by C. T. Hering, Esq., of Surinam.

A collection of about fifty species of coleopterous insects from Old Calabar, Africa. Presented by Dr. Le Conte on account of Andrew Murray, Esq., of Edinborough.

Eggs of ten species of birds; four specimens Scialia macroptera; ten specimens fishes; a bat; all from Texas. Also, four skulls of grizzly bear; two do.

Cervus macrotis; one do. Coyote; one do. Fox; one do. Wild Cat; one do. Mephitis; two do. Sciurus; three do. Lepus; two do. Spermophilus; and six do. of birds; from California. Presented by Dr. A. L. Heermann.

A collection of carboniferous fossils and a few vertebrate miocene fossils. From the neighborhood of Fort Riley, Kansas. Presented by Dr. W. A. Hammond, U. S. A.

A collection of cretaceous fossils, Texas; and a specimen of Unio laticostatus. from Brazos River. Presented by Mr. Moore.

Fossil shark's tooth, from Maryland. Presented by C. McMurtrie.

Cypricardia Leidyi, Lea, from the old red sandstone, near Pottsville. Presented by Dr. Leidy.

September 11th.

Libinia canaliculata; Lupa dicantha; Platyonichus ocellatus; Ocypode arenaria; Gelasimus pugilator; Gelasimus, n. s.; Limulus occidentalis; Crangon septemspinosus; Sesarma reticulata; Hippa talpoidea; Idotea triloba; Caligus cristatus; Pagurus policaris; a collection of Fishes; skulls of two species Ardea; and a small collection of Coleoptera. From Beesley's Point, N. J. Presented by S. Ashmead, Esq.

Salamandra lateralis, from Carlisle, Pa. Presented by Samuel B. Ashmead.

Slab of new red sandstone with Foot-marks, from Turner's Falls, Conn. Presented by Roswell Field.

September 18th.

Six Fossils from San Antonio, Texas. Presented by Dr. A. L. Heermann.

Two Nodules of Carb. Iron with a species of Nautilus as a nucleus. From Salt Sulphur Springs, Va. Presented by J. Lambert, Esq.

Lacerta viridis, Lacerta agilis, Elaphis Esculapii, Anguis fragilis; from the Forest of Fontainbleau, France. Presented by Dr. W. H. Taggart.

October 2d.

Eunice gigantea, Platurus fasciatus, Rana palustris, Salamandra maculata, several specimens of Remora and two other fishes; also, three specimens of Cicada, of large size. Presented by Constant Guillou, Esq.

Four minerals from Lebanon Co., Pa. Presented by Wm. Rank, Esq.

Specimen Nitride and Cyanide of Titanium from Spring Mills. Presented by Dr. Rand.

Sponge from Delaware Bay. From Mr. Ashmead.

October 9th.

Fifty species of sixteen genera of terrestrial and fluviatile shells of Cuba. Presented by Sénor F. A. Sauvalle, of Cuba.

Platalea leucorodia? from Egypt. From Mr. G. Latham through Dr. Elwyn.

Twenty-nine species of Marine Algæ from Beesley's Point, N. J. From S. Ashmead, Esq.

October 16th.

Five cretaceous Fossils from Alabama, and a Fossil Ostrea from Georgia. Presented by Joseph Jones, Esq.

Ichthyodorulite of Hybodus curtus, Ag. Presented by Dr. Wilson.

Skeletons of a mouse and two chimney swallows, (Acanthilis pelasgia). Presented by Edward Harris, Esq.

Fossil coral, and a small collection of fresh water recent shells; from Wisconsin. From the late Rev. Charles Fox through Mr. Cassin.

Fossils from the Carboniferous Limestone of England and Ireland of the following Genera:—Psammodus, Helodus, Cochliodus, Chromatodus, Strophodus, Oracanthus, Goniatites, Orthoceras, Nautilus, Euomphalus, Cirrus, Bellerophon, Pleurotomaria, Pileopsis, Natica, Rostellaria, Terebra, Turritella, Trochus, Amplexus, Spirifer, Pecten, Avicula, Isocardia, Mytilus, Cardium, Productus and

Atrypa, comprising 105 species and 281 specimens. Presented by Dr. Thomas B. Wilson.

DONATIONS TO LIBRARY

In September and October, 1855.

September 4th.

Smithsonian Contributions to Knowledge. Vol. 7. 4to. From the Smithsonian Institution.

Report of the Commissioner of Patents for the year 1854. Arts and Manufactures. 2 vols. 8vo. From the U. S. Patent Office.

Proceedings of the Boston Society of Natural History, pp. 193—208. From the Society.

Description of a new Mollusk from the Red Sandstone near Pottsville, Penna. By Isaac Lea. From the Author.

Dr. Wilson presented the following on the usual condition :—

Die Pflanze und ihr Leben. Von M. Schleiden Dr. 4th edition. 8vo.

Aus der Natur. Die neuesten Entdeckungen aus dem Gebeite der Naturwissenschaften. Vols. 1—5. 8vo.

Die Natur. Zeitung zur Verbreitung Naturwissenschaftlicher Kentniss und Naturanschauung für Leser aller Stände. Herausg. von Dr. Otto Ule und Dr. Karl Muller. 1853. Nos. 1—27. 1855.

Bonplandia. Zeitschrift für die gesammte Botanik. 1855. No. 11.

London Athenæum for July, 1855.

Journal of the Franklin Institute for August, 1855.

September 11th.

Denkschriften der k. Akad. der Wissen. Mathemat-natur. Classe. Band 8. 1854. From the Academy.

Sitzungsberichte der k. Akad. der Wissen. Mathemat.-natur. classe. 1854, Nos. 1, 2, 3; 1855, Nos. 1, 2. From the same.

Archiv für Kunde österreichischer Geschichts-Quellen. Herausg. von der aufgestellten Commission der k. Akad. der Wissen. 14 band. No. 1. 1855. From the same.

Notizenblatt. Beilage zum Archiv für Kunde österreich. Geschichtsquellen. 1855. Nos. 1—12. From the same.

Gelehrte Anzeigen, Herausg. von Mitgl. der k. bayerischen Akad. der Wissen. Band 39. 4to. From the Academy.

Almanach der k. bayer. Akad. der Wissen. für das Jahr 1855. From the same.

Nachrichten von der Georg-Augusts-Universität und der k. Gesellschaft der Wissen. zu Göttingen. 1854. Nos. 1—17. From the Society.

Verhandlungen der k. Russischen Mineralogischen Gesellschaft zu St. Petersburg. 1842, '43, '44, '45, '46 and '54. From the Society.

Schriften der in St. Petersburg gestifteten Russisch-Kaiserlichen Gesellschaft für die gesammte Mineralogie. 1er band, 1ste, 2e abth. From the same.

American Journal of Science and Arts for September, 1855. From the Editors.

Virginia Medical and Surgical Journal for September, 1855. From the Editors.

Journal of the Franklin Institute for September, 1854. From Dr. Wilson.

October 2d.

Proceedings of the American Academy of Arts and Sciences. Vol. 3, pp. 105—184. From the Society.

Charleston Medical Journal and Review for September, 1855. From the Editors.

November 13th, 1855.

The President, Mr. ORD, in the Chair.

Letters were read—

From the Society of Sciences, Netherlands India, dated Batavia, 26th Jan. 1854, transmitting vol. i., 2d series of their Review.

From Dr. Guido Sandberger, dated Wiesbaden, 21st Oct. 1855, acknowledging the receipt of his notice of election as a Correspondent.

From the Academy of Sciences of Berlin, dated 10th Oct. 1855, acknowledging the receipt of Journal and Proceedings of the Academy, and desiring missing numbers of the same.

Dr. Leidy exhibited a polyp mass of the animal described by him as *Escharina variabile*. The mass is in laminæ surrounding a fragment of oyster shell as a nucleus, and is rounded as if rolled beneath the sea.

November 20th.

Mr. ORD, President, in the Chair.

Letters were read—

From the Royal Saxon Society of Sciences, dated Leipzig, 18th May, 1855, transmitting donations to the Library announced this evening.

A paper was presented for publication in the Proceedings, entitled "Descriptions of some species of Coleoptera, supposed to be new, by Philip R. Uhler." Referred to Dr. Le Conte, Mr. Guex and Dr. Zantzinger.

Mr. Cassin presented for publication in the Journal, a paper, entitled, "Description of a new species of Parrot, *Brotogeris virifrons*." Referred to Dr. Wilson, Col. McCall and Dr. Bridges.

Mr. Ord stated that when recently in Europe, he had visited Paisley, in Scotland, the birth-place of Alexander Wilson. The project of erecting a monument to him there had been lately revived, and subscriptions made. Mr. Ord presented copies of the list of subscribers.

November 27th.

Vice President BRIDGES in the Chair.

The Committee on Mr. Uhler's descriptions of Coleoptera, supposed to be new, reported in favor of publication in the Proceedings:

Descriptions of a few species of Coleoptera, supposed to be new.

By PHILIP R. UHLER.

OMALOPLIA, Mels.

O. TROGIFORMIS. Dull blackish-brown; elytra ochraceous, 2¼ lines long. Baltimore.

Head roughly punctured; margin of clypeus recurved, anteriorly emarginate; antennæ ochraceous, club elongated: thorax covered with fine dense granulations, slightly hairy; scutel same character as thorax; elytra with elevated,

convex interstices, and finely punctured striæ: femora brownish, punctured; tibiæ armed with sharp spines; tarsi rather long, spinous: beneath punctured; venter of a lighter color than pectus.

A very rare species, and differs very materially from any other of our species in the broader form and smaller size. Specimens occur of a uniform dark blackish brown.

AGRILUS, Lap.

1. A. OCCIDENTALIS. Brilliant cupreous; thorax with an oblique fovea each side; elytra dark greenish. 4 lines long. Indiana.

Body brassy-cupreous: head greenish, finely granulated, front impressed, frontal line obsolete, apparent only at base; mandibles and beneath the eyes blackish; antennæ blackish cupreous: thorax transversely wrinkled, with an oblique fovea each side, a slightly elevated carina against the lateral margin in front; a shallower, abbreviated medial fovea at base, and an obsolete smaller one each side of the middle: scutel minutely shagreened: elytra dark green, in some with a purplish reflection, surface covered with rather dense granulations of a darker color, two slightly elevated striæ upon each; apical points a little divaricate, rounded: legs brassy polished, a little shagreened internally: beneath brassy: posterior margins of ventral segments not granulate, polished.

The largest species of this genus I have ever met with from this country; it was discovered near Evansville, Indiana, by Mr. J. P. Wild, who obtained it from a species of Salix.

2. A. IMPRESSIPENNIS. Entirely blackish-cupreous, with the exception of the face, which is greenish: four impressions upon each elytron. 2 lines long. Baltimore.

Body blackish cupreous, polished: head in front finely granulated, greenish; frontal line slightly impressed; antennæ same color as elytra: thorax finely shagreened, obsoletely impressed in the middle, and strongly, obliquely foveolate each side: scutellum blackish: elytra excavated against the humerus, and with a slightly excavated sulcus on each, containing four obsolete impressions; tips subacute, slightly divaricate: legs blackish-cupreous, polished: tergum brilliant purple: venter with a greenish reflection, polished, not obviously shagreened.

SPHENOPHORUS, Schönh.

S. SCULPTILIS. Entirely black, elevated portions shining; thorax with a sphenoid, posteriorly acuminate, medial, and two undulating, prominent elevations. 8½ lines long to tip of rostrum. Baltimore.

Black, punctured: rostrum rather robust, finely punctured at base; sulcated, and dilated immediately in front of base; club of antennæ, whitish at tip: thorax round, constricted in front, and slightly dilated a little before the middle, densely and coarsely punctured at sides, and between the elevations, puncta becoming finer anteriorly: scutel deltoid, excavated: elytra with two elevated interstitial lines, a prominent elongated tubercle each side behind the humerus, and a round one near the apex of each elytron, sutural lines slightly elevated: the three medial, and subsutural ones a little punctured at base: pygidium somewhat coarsely punctulate, punctures becoming finer at base: legs finely punctulate, patella more coarsely so: a large deep fovea upon the base of the postpectus, posteriorly: venter with gradually enlarging punctures, increasing in size toward the base.

CHLOROPHANUS, Dalman.

C.? UNDULATUS. Black; thorax obsoletely margined, silvery white at the sides; elytra with irregular, silvery undulations at sides; variegated silvery white behind the middle. 4 lines long including rostrum. Baltimore.

Black, beneath silvery: head scabrous; rostrum tinged with silvery at sides: antennæ black, club dusky; eyes black; thorax constricted posteriorly, finely shagreened; medial thoracic line impressed; obsoletely margined, silvery at

sides: antepectus somewhat regularly punctured, punctures elevated: scutel black: elytra punctate-striate, interstitial lines elevated; an irregular undulating silvery vitta upon the lateral submargins, extending from humeral angle to apex, interrupted in the middle, and merging into scattered variegations behind the sutural middle: legs with cupreous reflections, finely pubescent; a silvery spot immediately in front of posterior coxæ: venter punctulate, silvery. A very distinct and beautiful insect, which I doubtingly refer to the genus cited. A very rare species, two individuals only having occurred.

BARIDIUS, Sch.

B. PUBESCENS. Entirely covered with dense, fulvous pubescence.

4 lines long to tip of rostrum. Virginia.

Densely yellowish pubescent: head, rostrum and eyes piceous-black, rostrum slightly pubescent at base; antennæ black, club piceous: thorax densely pubescent, pile running transversely each side from the middle, middle slightly elevated: legs and feet pubescent: elytra striate punctate, punctures not visible through the pubescence: beneath densely pubescent.

A very distinct species, and may be easily recognized by the uniform long yellowish pubescence with which the whole body is invested. Rubbed specimens appear brownish, the pubescence being very deciduous.

ACANTHODERES, Serv.

A. MORRISI. Whole body covered with bluish-cinereous pubescence; 5 spinous tubercles upon the thorax, exclusive of the lateral ones; elytra each with a sublunulate macula behind the middle. 11 lines long; 5 broad. Baltimore.

Cinereous pubescent: head brownish, punctured; labrum piceous, ciliate in front with yellowish hairs; frontal line entire, a longitudinal elevation each side at base; antennæ annulate with black, 1st joint thickened at extremity: thorax anteriorly and posteriorly, sparsely and coarsely punctured, three spinous tubercles on the middle placed laterally, external ones bipartite, lateral spines hardly acute: scutel with two round dots of black pile, densely pubescent: elytra roughly shagreened, slightly elevated each side, behind the scutel; humeri prominent, acute; 4 elevated striæ containing black dots, lateral and sutural margins dotted black; also 4 black dots on each side, one near the lateral margin, one behind the humerus, one immediately in front of the apex, and a large somewhat lunate (anteriorly emarginate, and posteriorly trifurcate) spot, the outside branch of which runs obliquely outwards, each spot surrounded with a fulvous margin; tips obliquely truncated, slightly divaricate: femora strongly clavate, black at tip and reddish at base, tibiæ annulate with black, tarsi blackish, pulvilli yellow; venter terminal segments almost without pubescence.

I take great pleasure in dedicating this beautiful insect to the Rev. John G. Morris, as a slight testimonial of my esteem for him as an eminent Entomologist, and liberal patron of the natural sciences.

DORCASCHEMA, Lec.

D. WILDII. Ground color brown, entirely invested with dense cinereous pubescence; antennæ basal joints finely pointed with brown; lateral yellowish vitta extending from behind the eyes to apex of elytra. 10 lines long; (elytra 7;) 2½ wide. Baltimore upon *Morus*.

Densely cinereous pubescent: head ashy pubescent with a lateral yellowish vitta, frontal line impressed; mandibles and palpi piceous-black: antennæ terminal joints annulate with blackish, basal ones scabrous, finely pointed with brown, pubescent: eyes dark brown: thorax lineate with yellow each side, and together with the head very finely, transversely wrinkled, dorsal line obsolete anteriorly: scutel cinereous pubescent; elytra a little less densely pubescent, beautifully marked with fine brown points, humeral angles prominent, base coarsely and closely punctured, becoming less so posteriorly: legs densely pubescent, finely and closely brown-punctured: venter ciliate at tip.

It affordes me much pleasure in dedicating this fine insect to Mr. J. P. Wild,

as a slight testimony of my esteem for him as a zealous prosecutor of Entomological research. This rare and beautiful insect was first obtained in Baltimore on the common Grape, but a specimen was brought from Evansville, Ind., by Mr. Wild, who obtained it from the Mulberry, and another specimen has since been captured by me upon that tree.

PACHNEPHORUS, Chevr.

P. VITICOLUS. Brownish-black, clothed with a dense ashy pubescence; beneath, and legs blackish. 2½ lines long. Baltimore.

Densely ashy pubescent: head closely punctured, frontal line impressed, labrum blackish; palpi and basal joints of the antennæ testaceous, terminal joints dusky above: thorax finely, and densely punctured; rather dilated in the middle: scutellum densely pubescent: elytra punctate-striate, interstices finely shagreened; ground color a little lighter upon the tips: beneath, and legs blackish; articulations of the legs faintly reddish-testaceous.

NEMOGNATHA, Illig.

N. FLAVIPENNIS. Body black; head, thorax and elytra yellow.

5 lines long. Virginia.

Body black: head yellow, eyes and antennæ black, mandibles and palpi piceous, maxillary filaments yellow: thorax subquadrate, finely and minutely punctured: scutel same color as elytra, minutely punctured: elytra dusky yellow towards the tip: legs yellow, finely sericeous pubescent, tarsi black: venter somewhat pubescent. Spurs of the posterior tibiæ small, acute.

The Committee on Mr. Cassin's description of a new species of Parrot, reported in favor of publication in the Journal.

The Report of the Corresponding Secretary for Oct. and Nov. 1855 was read.

ELECTIONS.

Dr. Robert F. Brown, and Dr. Samuel Moore, of Philadelphia, and Mr. Samuel D. Howell, of Camden, N. J., were elected *Members*.

December 4th.

The President, Mr. ORD, in the Chair.

Letters were read—

From Dr. Samuel Moore, dated Philadelphia, 3d Dec. 1855, acknowledging the receipt of his notice of election as a member:

From C. A. Dos Santos, dated Rio de Janeiro, 11th Oct. 1855, acknowledging the receipt of his notice of election as a Correspondent:

From the Imperial Society of Naturalists of Moscow, dated 13th and 26th of June, 1854:

From the Imperial Geological Institute of Vienna, dated 20th May, 1855:

From the Royal Society of Agriculture, Science, &c. of Lyons, dated 23d June, 1855:

From the Royal Academy of Sciences, Belles Lettres and Arts of Lyons, dated 23d June, 1855:

From the "Fürstlich Jablonowskischen Gesellschaft," of Leipsig, dated 4th July, 1855:

From the Royal Academy of Sciences of Amsterdam, dated 5th June, 1855:

From the Natural History Society of Prussian Rhineland and Westphalia, dated Bonn, 13th August, 1855: and

From the Minister of Public Works, Direction of Mines, of France, dated Paris, 27th June, 1855: severally transmitting donations to the Library, announced this evening.

Major Le Conte presented for publication in the Proceedings, the following papers:—"Observations on the North American Bats," and "Descriptive Catalogue of the Ranina," both of which were referred to Drs. Bridges, Leidy and Hallowell.

December 11th.

Vice President BRIDGES in the Chair.

A letter was read from Chas. Wilson Peale, dated Shamokin, Northumberland Co. Penn., Dec. 8th, 1855, stating that a Society has been recently formed at that place, entitled the Shamokin Lyceum, and desiring contributions of objects of Natural History for the same. Referred to the Curators.

December 18th.

Mr. ORD, President, in the Chair.

Letters were read—

From Signor Jose Antonio G. y Garcia, dated Lima, 23d Oct. 1855, acknowledging the receipt of his notice of election as a Correspondent, and transmitting the donation to the Library announced this evening:

From the Librarian of the British Museum, dated 16th Nov. 1825, acknowledging the receipt of the Proceedings of the Academy:

Mr. Cassin presented for publication in the Proceedings the following paper, "Notices of some new and little known birds in the collection of the U. S. Exploring Expedition in the Vincennes and Peacock, and in the collection of the Academy of Natural Sciences of Philadelphia." Referred to Col. McCall, Dr. Wilson and Dr. Bridges.

Mr. Conrad presented the following for publication in the Proceedings:—"Note on the Miocene and Post-Pliocene deposits of California, with descriptions of two new fossil Corals," and "Description of a new species of Pentamerus;" both of which were referred to Dr. Wilson, Mr. Vaux and Dr. Le Conte.

Major LeConte presented for publication in the Proceedings, a paper, entitled, "Description of a new species of Hesperomys." Referred to Mr. Cassin, Dr. Henderson and Dr. Hallowell.

Dr. Leidy presented for publication in the Proceedings, a paper entitled,

"Notices of some Tape-worms." Referred to Drs. Bridges, J. A. Meigs and Hallowell.

Dr. J. Aitken Meigs presented for publication, a revised edition of the *Catalogue of Human Crania* in the collection of the late Dr. Samuel George Morton:

Since the death of Dr. Morton, his magnificent collection of Human Crania, recently increased by the receipt of 40 skulls from various sources, has been permanently deposited in the Museum of the Academy. Prior to his decease, Dr. M. had received about 100 crania, in addition to those mentioned in the third edition of this catalogue. Since 1849, therefore, the collection has been augmented by the addition of 140 skulls.

To complete the catalogue in a uniform manner, these have been carefully numbered and measured in accordance with the methods recorded in the *Crania Americana*, &c. In a portion of these measurements, I was kindly assisted by our fellow-member, Dr. Thomas J. Turner, of the United States Navy.

The entire collection, numbering 1067 crania, was purchased by 42 gentlemen, from the executors of Dr. Morton, for the sum of $4000, and by them generously presented to the Academy.*

The collection occupies 16 cases on the first gallery, on the south side of the lower room of the Museum. For convenience of study and examination, I have grouped it according to Race, Family, Tribe, &c., strictly adhering, however, to the classification of Dr. Morton. It will be seen, also, that the same arrangement has been adopted in this edition of the catalogue, so that it is an exact representation of the collection as it stands upon the shelves. While the old numbering has been carefully preserved for the sake of reference to the various published descriptions of Dr. Morton, new numbers have been added to designate the position of any skull in the natural division or sub-division to which it belongs.

The crania are distributed as follows:

I. CAUCASIAN GROUP.

1. *Scandinavian Race.*

Norwegian,	1
Swedish Peasants,	7
Finland Swedes,	2
Sudermanland Swedes,	3
Ostrogoth,	1
Turannic Swede,	1
Cimbric Swedes,	3
Swedish Finns,	3
	21

2. *Finnish or Tchudic Race.*

True Finns,	10

3. *Suevic Race.*

Germans,	11
Dutchman,	1
Prussians,	4
Burgundian,	1
	17

4. *Anglo-Saxons.*

English,	4

5. *Anglo-Americans*, 8

6. *Celtic Race.*

Irish,	8

7. *Sclavonic Race.*

Sclavonians,	2

8. *Pelasgic Race.*†

Ancient Phœnician,	1
Ancient Roman,	1
Greek,	1
Circassians,	4
Armenians,	6
Parsees,	2
Affghan,	1
Græco-Egyptians,	23
	39

*See Proceedings of the Academy, vol. vi. pp. 321, 324.

† Dr. Morton used the term *Pelasgic* too comprehensively. The Circassians, Armenians and Persians should not be placed in this group.

9. *Semitic Race.*

Arabs,	5
Hebrews,	8
Abyssinian,	1
	14

10. *Berber Race.*(?)

Guanché,	1

11. *Nilotic Race.*

Ancient Theban Egyptians,	34
" Memphite "	17
" Abydos "	2
" Alexandrian "	3
Egyptians from Gizeh,	16
Kens or Ancient Nubians,	4
Ombite Egyptians,	3
Maabdeh Egyptians,	4
Miscellaneous,	5
Fellahs,	19
	107

12. *Indostanic Race.*

Ayras,(?)	6
Thugge,	2
Bengalese,	32
Uncertain,	3
	43

II. Mongolian Group.

1. *Chinese Race.*

Chinese,	11
Japanese,	1
	12

2. *Hyperborean Race.*

Burat Mongol,	1
Kamschatkan,	1
Kalmuck,	1
Laplanders,	4
Hybrid Laplander,	1
Eskimo,	4
	12

III. Malay Group.

1. *Malayan Race.*

Malays,	23
Dyaks,	2
	25

2. *Polynesian Race.*

Kanakas	7
New Zealanders,	3
Marquesas,	1
	11

IV. American Group.

1. *Barbarous Race.*

a. North Americans.

Arickarees,	3
Assinaboins,	3
Chenouks,	7
Oregonians,	6
Cherokees,	6
Chetimaches,	2
Chippeways,	2
Cotonays,	3
Creeks,	4
Dacotas,	2
Hurons,	4
Iroquois,	3
Illinois,	2
Lenapes,	10
Mandans,	7
Menominees,	7
Miamis,	12
Minetaris,	4
Mohawks,	3
Narragansets,	10
Natchez,	2
Naticks,	5
Osages,	2
Otoes,	4
Ottawas,	4
Ottigamies,	4
Pawnees,	2
Penobscots,	2
Pottawatomies,	4
Sauks,	3
Seminoles,	16
Shawnees,	4
Shoshones,	4
Upsarookas,	2
Winnebagos,	2
Yamassees,	3
Californians,	2
Miscellaneous,	45
	210

b. Central Americans.

Maya,	1
Fragments from Yucatan,	2
	3

c. South American.

Araucanians,	10
From Mounds,	2
Charibs,	3
Patagonians,	2
Brazilians,	7
	24

2. *Toltecan Race.*

a. Peruvian Family.

Aricans,	20
Pachacamac,	104
Pisco,	62
Santa,	8
Lima,	7
Callao,	3
Miscellaneous,	9
Elongated skulls from Titicaca, &c.,	8
	221

b. Mexican Family.

Ancient Mexicans,	24
Modern Mexicans,	9
Lipans,	2
	35

V. NEGRO GROUP.

1. *American born*,	16
2. *Native Africans*,	86
3. *Hovas*,	2
4. *Alfurian Race.*	
Australians,	11
Oceanic Negroes,	2
	117

VI. MIXED RACES.

Copts,	5
Negroid Egyptian,	12
Nubians,	3
Hispano-Peruvian,	2
Negroid-Indian,	3
Hispano-Indian,	1
Malayo-Chinese,	1
Mulattoes,	2
	29

VII. LUNATICS AND IDIOTS,	18
VIII. ILLUSTRATIVE OF GROWTH,	7
Phrenological Skulls,	2
Nation uncertain,	7
Total,	1007

Extensive and unique as is this collection, it is, nevertheless, still too limited to justify any positive and comprehensive conclusions concerning the great fundamental problems of Ethnology. That it will be capable, when sufficiently extended, of throwing much light upon these obscure and unsettled questions, is amply attested by the scientific publications of Dr. Morton. It is earnestly hoped, therefore, that this magnificent nucleus, the result of much pecuniary sacrifice and many years of enthusiastic labor on the part of its late illustrious owner and founder, will not be neglected; but that its efficiency will be increased, and the objects for which it was gathered together attained by contributions from all who may be interested in the advancement of this youngest, most intricate and most important of the sciences.

The Norwegians and Danes of the Scandinavian race; the Bas-Bretons; the Celtic Scotch, Welsh, French, Spanish and Portuguese; the Ancient and Modern Greeks; the Magyar people; the Great Tartar and Scythic hordes; the entire Basque Family, and many other races, are without a single representative in the collection. Of the Polar and Tchudic Families it contains but 4, and 9 skulls respectively; while the ancient Romans and their descendants, the modern Transteverini beyond the Tiber; the great Sclavic race and the Berber tribes are each represented by but one skull.

These deficiencies—and many others could be particularized—are recorded in the hope that the attention of the scientific community being directed to them, they will sooner or later, be supplied.

On motion of Mr. Lea, it was ordered that a set of the Proceedings, as far as published, be presented to Prince Charles Bonaparte.

On motion of Mr. Hanson, it was *resolved* that an invitation be extended to the Educational Convention about to meet in this city, to visit the Museum of the Academy.

December 25th.

Vice President BRIDGES in the Chair.

The Committees, to which were referred papers read by Major Le Conte, Dec. 4th; by Mr. Cassin, Dec. 18th; by Mr. Conrad, same date; by Major Le Conte, same date; and by Dr. Leidy, same date, reported in favor of publication in the Proceedings:

Descriptive Catalogue of the Ranina of the United States.

By JOHN LE CONTE.

On account of the numerous errors which have been introduced into that part of the Herpetology of our country, which treats of the frogs and allied animals, I have been induced in this short memoir, to reduce such as I have been able to obtain, to some better order. I offer but a descriptive catalogue. To this are joined all the synonyms which I have been able to collect from works which could be consulted in this city.

Before I begin, it is necessary to observe that all the Ranina which I have ever seen, have more or less the power of changing color at will. The character of color therefore, of so much moment in the description of many other animals, is here of very little value; for none of the marks dependant on it are constant. In consequence, it requires numerous specimens, living subjects and long study to produce any description that approaches perfection.

How far I have succeeded in my attempt remains to be seen. I have been long and sedulously engaged in my researches. Every description has been made from living specimens. The many strange errors and misnomers pointed out will perhaps appear at first sight extraordinary and not worthy of belief: but it is to be hoped that the reasoning which has led me to differ so much from others, will produce the same effect upon the minds of my readers as it has upon mine.

RANA CATESBIANA. Shaw, gen. zool. vol. iii. pl. 33 ann. 1802. R. mugiens Merrem. p. 175 ann. 1820. R. pipiens Holbrook iv. p. 77 et aliorum. R. scapularis Harlan, Journ. Acad. Nat. Sci. vol. v. p. 335. Catesby Carolina vol. ii. tab. 72. Vulg. Bull frog and Blood and Owns.

Add to the descriptions already given, a short raised line runs from the back of the orbit, to the tympanum and is curved down behind it. Body above finely granulate, more distinctly at the base of the jaws. Color above olive green and olive brown of every shade, irregularly spotted and blotched with dusky, or uniform brownish dusky without any visible variegation except on the fore part of the head, where there is in all an inclination to green; in some few the whole body above is green. A deep depression under the nostrils. Beneath white or yellowish white, sometimes without spots or spotted with dusky only on the chin, sometimes spotted or blotched all over, or again dusky or black spotted and varied with white.

Length from nose to the tip of the toes 20 inches.

Inhabits from one end of the country to the other.

R. NIGRESCENS Agassiz. Agas. Lake Superior p. 379.

Above very rough with numerous warts, dusky, blackish brown or dark brown, more or less distinctly spotted with darker, the spots frequently angular; a longitudinal cutaneous fold runs on each side of the back from the orbits to the vent. Body beneath punctate, whitish, very much varied on the chin with black, sides slightly spotted with white: the under and hind part of the thighs spotted or sometimes varied with black, the under side of the tibiæ and feet are likewise yellowish with some few spots of black.

Length 2 5 in., arm 1.9 in., leg 3.9.

Inhabits Lake Superior, particularly on the north side.

This species has by some been considered as a variety of the R. fontinalis, to

which species it bears only a remote resemblance. The illustrious naturalist to whom we owe the first description of this animal was not so ignorant as to confound the two together.

R. FONTINALIS. R. fontinalis L. C., Annals of Lyceum N. Y. vol. i. p. 282. R. clamata Dumeril and Bibron vol. viii. p. 373. R. flavo-viridis and clamata Harlan l. c. p. 338. R. Horiconensis Holbrook l. c. p. 85. R. fontinalis ejusdem ibid. p. 87.

A glandulous raised line always extends from the orbit to the sacral prominence. The color varies, being ashy grey, greyish or blackish brown, olive, yellowish green, rarely brown with a bronze reflection, sometimes without spots, most frequently spotted with dark brown or dusky, particularly on the sides, which are always lighter colored than the back. Beneath white or white spotted or varied with dusky or brown.

Inhabits the Northern States in springs or rivulets of cold water. In the southern parts of our country the water is doubtless too warm for its existence.

R. PIPIENS. R. pipiens Gmel. Lin. i. p. 1052. Bad. Bonaterre Encyc. method. pl. iv. figs. 2 and 3. R. halicina Daudin Hist. Rain. p. 63. Eadem Holbrook l. c. p. 91 et aliorum. R. melanotus Raf. R. utricularia Harlan, l. c. p. 337.

Above smooth, with some scattered warts or small tubercles either round or oblong, sometimes uniting so as to form four raised lines the anterior abbreviated both before and behind, the posterior only before, but both tubercles and lines depending for their appearance on the will of the animal. Behind the eyes are sometimes observed some large punctures. Color green, brownish green, brown of various degrees of intensity, reddish and dusky, varying to all these at the will of the animal; when brown they have frequently a metallic gloss. The upper lip and tympanum are often golden. When found in a state of torpidity they are frequently almost black. There is a raised whitish line extending from under the eye to the insertion of the fore leg, and we never fail to find a raised cutaneous fold or line of white or yellowish extending from the orbit to the hind part of the body; this together with the spots on the sides and back, form the proper characteristics of this species, yet I have one before me that has but five spots on the back, three on one side and two on the other with none on the sides. The lower part of the sides of this near the groin are bluish. This species has a vocal vesicle on the side of each jaw like the R. esculenta.

I have restored to this species its original name of *pipiens*. Kalm has some how or other the credit of giving to it the name of *halecina*, upon what authority I cannot find, neither can I see how the name fits. The word *halec* in Latin signified a kind of sauce apparently like that we now call anchovy sauce. Afterwards it came to mean any kind of small and cheap fish, by no means however either herring or shad, both of which must have been unknown to the Romans before the conquest of Gaul. How the name was taken from this species and given to the bull frog it would be difficult to discover. No one who knew any thing of the two animals, would confound the soft peeping sound of a chicken with the loud roaring of a bull.

R. PALUSTRIS. R. palustris L. C., l. c. p. 282. Eadem Holbrook l. c. p. 95. R. pardalis Harlan. Silliman's Journal x. p. 60.

The hind part of the thighs is always yellow spotted with black. It is remarkable for its strong and disagreeable odor. Much resembles the preceding, but is distinguished at once by the two raised lines on the back being wanting: these never fail in the R. pipiens. It sometimes has the black spots on the top of the back connected into two longitudinal bands.

R. CLAMATOR. R. clamata Daudin l. c. p. 54. R. clamitans Merrem. p. 176.

Above smooth, with a few scattered warts, dark olive, cinereous or dark green, with a few irregular black spots, and frequently with a darker line extending from the orbits to the insertion of the hind legs. Beneath smooth white, more or less varied with dusky. Upper eyelid smooth, tympan brown, vomerian teeth small, the two clusters nearly joined together. Arms and legs barred with dusky, fingers a little dilated at the tips, the first equal to or longer than the second and

as a slight testimony of my esteem for him as a zealous prosecutor of Entomological research. This rare and beautiful insect was first obtained in Baltimore on the common Grape, but a specimen was brought from Evansville, Ind., by Mr. Wild, who obtained it from the Mulberry, and another specimen has since been captured by me upon that tree.

PACHNEPHORUS, Chevr.

P. VITICOLUS. Brownish-black, clothed with a dense ashy pubescence; beneath, and legs blackish. 2½ lines long. Baltimore.

Densely ashy pubescent: head closely punctured, frontal line impressed, labrum blackish; palpi and basal joints of the antennæ testaceous, terminal joints dusky above: thorax finely, and densely punctured; rather dilated in the middle: scutellum densely pubescent: elytra punctate-striate, interstices finely shagreened; ground color a little lighter upon the tips: beneath, and legs blackish; articulations of the legs faintly reddish-testaceous.

NEMOGNATHA, Illig.

N. FLAVIPENNIS. Body black; head, thorax and elytra yellow.

5 lines long. Virginia.

Body black: head yellow, eyes and antennæ black, mandibles and palpi piceous, maxillary filaments yellow: thorax subquadrate, finely and minutely punctured: scutel same color as elytra, minutely punctured: elytra dusky yellow towards the tip: legs yellow, finely sericeous pubescent, tarsi black: venter somewhat pubescent. Spurs of the posterior tibiæ small, acute.

The Committee on Mr. Cassin's description of a new species of Parrot, reported in favor of publication in the Journal.

The Report of the Corresponding Secretary for Oct. and Nov. 1855 was read.

ELECTIONS.

Dr. Robert F. Brown, and Dr. Samuel Moore, of Philadelphia, and Mr. Samuel D. Howell, of Camden, N. J., were elected *Members*.

December 4th.

The President, Mr. ORD, in the Chair.

Letters were read—

From Dr. Samuel Moore, dated Philadelphia, 3d Dec. 1855, acknowledging the receipt of his notice of election as a member:

From C. A. Dos Santos, dated Rio de Janeiro, 11th Oct. 1855, acknowledging the receipt of his notice of election as a Correspondent:

From the Imperial Society of Naturalists of Moscow, dated 13th and 26th of June, 1854:

From the Imperial Geological Institute of Vienna, dated 20th May, 1855:

From the Royal Society of Agriculture, Science, &c. of Lyons, dated 23d June, 1855:

From the Royal Academy of Sciences, Belles Lettres and Arts of Lyons, dated 28d June, 1855:

From the "Fürstlich Jablonowskischen Gesellschaft," of Leipsig, dated 4th July, 1855:

From the Royal Academy of Sciences of Amsterdam, dated 5th June, 1855:

From the Natural History Society of Prussian Rhineland and Westphalia, dated Bonn, 13th August, 1855: and

From the Minister of Public Works, Direction of Mines, of France, dated Paris, 27th June, 1855: severally transmitting donations to the Library, announced this evening.

Major Le Conte presented for publication in the Proceedings, the following papers:—"Observations on the North American Bats," and "Descriptive Catalogue of the Ranina," both of which were referred to Drs. Bridges, Leidy and Hallowell.

December 11th.

Vice President BRIDGES in the Chair.

A letter was read from Chas. Wilson Peale, dated Shamokin, Northumberland Co. Penn., Dec. 8th, 1855, stating that a Society has been recently formed at that place, entitled the Shamokin Lyceum, and desiring contributions of objects of Natural History for the same. Referred to the Curators.

December 18th.

Mr. ORD, President, in the Chair.

Letters were read—

From Signor Jose Antonio G. y Garcia, dated Lima, 23d Oct. 1855, acknowledging the receipt of his notice of election as a Correspondent, and transmitting the donation to the Library announced this evening:

From the Librarian of the British Museum, dated 16th Nov. 1825, acknowledging the receipt of the Proceedings of the Academy:

Mr. Cassin presented for publication in the Proceedings the following paper, "Notices of some new and little known birds in the collection of the U. S. Exploring Expedition in the Vincennes and Peacock, and in the collection of the Academy of Natural Sciences of Philadelphia." Referred to Col. McCall, Dr. Wilson and Dr. Bridges.

Mr. Conrad presented the following for publication in the Proceedings:—"Note on the Miocene and Post-Pliocene deposits of California, with descriptions of two new fossil Corals," and "Description of a new species of Pentamerus;" both of which were referred to Dr. Wilson, Mr. Vaux and Dr. Le Conte.

Major LeConte presented for publication in the Proceedings, a paper, entitled, "Description of a new species of Hesperomys." Referred to Mr. Cassin, Dr. Henderson and Dr. Hallowell.

Dr. Leidy presented for publication in the Proceedings, a paper entitled,

TELMATOBIUS Wiegmann.

T. LENTIGINOSUS. Bufo lentiginosus, Shaw's Zool. iii. p. 173 pl. 3. Catesby ii pl. 69.

Above more or less granulate with small scattered warts, cinereous or dark slate color, speckled all over with whitish or pale brownish grey, and with brown or dusky; beneath whitish, spotted and varied with dusky, particularly on the throat and under side of the legs. Head small, vertex plane; irids golden; tympanum small, scarcely visible from its color. Arms of the color of of the body, spotted more especially behind, fingers slightly webbed, the first much shorter than the second. Legs obscurely barred with darker, feet fully palmate.

Length 2·25, width of head ·7, length of the same arm 1·5, leg 3·44, thigh ·9, tibia 1·04, foot 1·5.

Inhabits Georgia.

This animal, with considerable resemblance to a toad, is nevertheless a perfect frog. It wants the vomerine teeth which are always found in the genus Rana. Whether the fact of its wanting the small and imperfect vomerine teeth should make us consider the Telmatobius as distinct from Rana, is a question I shall not take upon me here to decide; it is enough to say, that the present eagerness for the erection of new genera is fast degrading Natural Science into a system of empirical uncertainty. Of its mode of life I know nothing; it was found on a road bordered on each side by a deep ditch. Mr. Catesby, who has an excellent figure of it, calls it the land frog.

ACRIS Dumeril.

A. GRYLLUS. A. gryllus L. C. Ann. Lyc. N. Y. i. p. 282. Dumeril & Bibron l. c. p. 507 pl. 33.

Body above more or less papillous, some of the papillæ joined together so as to form narrow oblong abbreviated lines. Chin and throat smooth, abdomen and inner and hind part of the thighs, cancellately reticulate. The color above is dark brown, brownish dusky, reddish brown, cinereous or dull green with sometimes some very indistict spots of darker or of dusky. The triangular spot on the vertex is often evanescent as is likewise the vertebral line of paler, or green or reddish. The white line bounding the black spot from the orbits is frequently wanting as is also the spot itself, as well as the one from the arm along the side. Upper lip with sometimes three white perpendicular bars. Throat and breast often varied with dusky. Tympanum rather indistinct. In one specimen the color was brown with a golden gloss.

Length 1·4, head ·45, arm ·8, leg 2·8 in., thigh ·75, tibia ·85, foot 1·2 in.

Found in immense numbers in every piece of water in the Southern States, and *was* a few years ago commonly known by the name of Savannah Cricket.

A. CREPITANS. A. crepitans Baird Proc. Acad. N. S. vol. vii. p. 59. Hylodes gryllus Holbrook l. c. plate 33, and Dekay N. H. N. Y. p. 22 No. 51.

Body above with small warts of different forms and irregular disposition, which are frequently of a yellowish brown color. Color above obscure green or olivaceous, dotted all over with extremely minute points of black, a short oblong and oblique dark brown or black spot, often with a white line below it, proceeds from the orbit to the insertion of the arm, another of the same oblong form and oblique direction formed from the juxtaposition of very small specks of black, runs from near the axilla half way down the side, and a third one farther behind reaches almost to the groin, all these however vary in form, and the third one is frequently evanescent. Lips generally whitish spotted with black, chin and throat granulate sometimes yellow, most frequently white and often speckled with dusky, top of the nose with transverse wrinkles, tympanum small and indistinct, of the color of the body. Body beneath white, with a fold on the breast between the arms. Abdomen rugoso-granulate, punctate. Legs beneath grey, thighs on the under and hinder parts granulate with white, one of the granules on each side of the anus larger and very conspicuous, above these is an angular darker

spot. Arms and legs barred or spotted with darker or dusky, thighs with one or two darker spots, tibia a little varied in the same manner. Very much resembles the preceding but the head is shorter and blunter, the body likewise is not as slender or as graceful in form as in A. gryllus, having a considerable resemblance to a toad. Varies extremely in color and in other marks. The only unvarying marks which I have been able to discover are the warts on the back, the dusky line from the axilla on the side (which sometimes almost vanishes) the darker angular spot above the anus (which at times is scarcely perceptible) and the white granules on the hinder and under parts of the thighs. They are found of a green color with a reddish line along the middle of the back, and olivaceous with a red or green vertebral line, in the majority of specimens however this line is entirely wanting. In some the warts on the back are few in number, and the lower ones on each side coalesce into a line resembling a cutaneous fold. In others a few dark spots of greater or less size are seen on the back, and there is on the head a large triangular spot of dusky, the base of which is placed between the orbits, the apex pointing backwards often to be only traced by three narrow lines forming a triangle frequently reduced to one transverse bar, and again being sometimes entirely wanting. There are likewise in some a few large oblong spots of cinereous dusky on the back, which are so placed as to form a recurved vitta on each side of the vertebral column, they are however sometimes not joined together and then may be said to be scattered irregularly. The upper lip is sometimes white varied with black, sometimes entirely white, of which color is also the lower lip, almost always dotted with black. The black spot from the orbit to the arm is often wanting and its place occupied by the enlarged inferior white line. In many individuals the spot from the axilla is the only one visible on the side. The fingers in all are slightly bullated at the extremity, which gives it the faculty of supporting itself on smooth perpendicular surfaces.

Whether all the variations above mentioned are permanent in the individuals where they have been observed, or depend upon the will of the animal, I have not been able to determine precisely. In many instances however, they are the voluntary changes which for some unknown reasons this creature chooses to make in its appearance.

Length 1·2 in., head ·3, arm ·6, leg 1·7, thigh ·4, tibia ·5, foot ·6.

Inhabits the Northern and Middle States.

CHOROPHILUS Baird.

C. NIGRITA. Rana nigrita L. C. l. c. Cystignathus nigritus Holbrook l c. pl. 26. Acris nigrita Dumeril, l. c. p. 509.

Body elongated rather narrow, above with numerous small warts. Color above dark slate, with more or less of oblong, oval or round sometimes very numerous black spots, which often form stripes. Upper lip white, which color often extends to the insertion of the arm. Irids golden. Tympanum distinct, black or of the color of the body. A broad black band extends from the nose through the eyes and along the sides to beyond the middle of the body. Beneath whitish, sometimes tinged with yellow with a few black spots irregularly assembled in groups, cancellately reticulate (in dead specimens appearing granulate) arms and legs spotted and barred with black; thighs and tibiæ granulated, more or less covered with small warts. A very slight scarcely perceptible web between the second and third and between the third and fourth toes, the fourth and fifth are closely united at the base. Fingers and toes with small dilations at their tips. Chin often dusky.

Inhabits Georgia and S. Carolina in ditches and ponds.

This species has been placed by Dr. Holbrook in the genus Cystignathus, to which it cannot possi ly be referred, as it has the vocal vesicle under the chin and not at the corners of the mouth. M. Dumeril has called it an Acris. That genus has the toes properly and strongly webbed.

C. ORNATUS. Cystignathus ornatus Holbrook l. c. pl. 25.

Body short and broad. Above smooth, pale brown or dove or slate color, with numerous specks of black. Lips whitish, yellowish or flesh color. Irids golden. Tympanum small, black, distinct. Top of the head with a large, irregular, triangular, dusky spot, the base of which lies between the eyes, and the apex points backward, this with a long stripe of the same color on each side of the vertebral column is sometimes very distinct, at others not visible. A black vitta extends from the point of the nose through the eye and tympanum to near the insertion of the arm, and is sometimes continued on until it joins another which runs along the sides to the middle of the body; there are one or two spots of the same color towards the hind part of the body, frequently however wanting; when present all these black marks are bordered by yellow or white. Beneath except on the throat cancellately reticulate, white or yellowish with numerous black specks assembled in irregular groups. Legs above with transverse bands of darker or dusky, thighs behind granulate and often spotted with yellow; there is generally a black spot on the outer part of the shoulder. The tongue in this species is much rounder than in the preceding, it is also more slightly emarginate and less narrowed at the base.

Length 1.3 in., leg 1.8, tibia and foot 1.2.

Inhabits Georgia, very common in the pine barren ponds.

HYLA.

H. VERSICOLOR. H. versicolor L. C. l. c. Tree frog of Pennant Arct. Zool. ii. Supl. p. 81. Dendrobyas versicolor Wagler.

Body very broad and blunt, above covered with small warts; beneath every where granulate, the granules on the throat and chin are so small, that these parts appear almost smooth, tibia beneath reticulate. The color above varies at will from pale brown to different shades of ash and to green, with a few irregular spots or blotches, variable both in color and in form, which at times are so arranged as to assume the appearance of an oblique angled cross; there are also numerous specks of black on different parts of the body. Beneath the color is white, the inner and hinder sides of the thighs are of a deep yellow or orange color, the under side with that of the tibia deep flesh color, both of them reticulate with black.

Inhabits from New York to the lower and warmer parts of Georgia, where however it is very rare.

This animal is the analogue of the Hyla arborea of Europe.

H. LATERALIS. Cinereous frog, Penn. l. c. p. 82. H. lateralis Daudin. Rana bilineata Shaw iii. p. 136. Hyla or Calamita lateralis aliorum. Hyla viridis Holbrook l. c. pl. 29. Variety of Hyla viridis of Europe Laurenti, Synop. Rept. p. 33.

Body rather narrow and elongated. Varies in being above of various shades of green sometimes nearly black, the green color however being by far the most common, the other marks are constant. The line on the sides is either yellow or silvery. In the spring it is found in rice-fields in astonishing quantities. Is commonly known by the name of the bell-frog, its notes resembling the sound of small bells. It is frequently called the *fried bacon* frog, as its voice seems to some ears to repeat those words. Laurenti considers it as a variety of Hyla arborea which he calls viridis, although it had borne the former name for many years before he wrote his synopsis. Our American animal has but little resemblance to the European, especially in form.

H. FEMORALIS. Daudin, l. c. p. 19. Calamita femoralis, Merrem. p. 171. No. 11. Auletris femoralis, Wagl. p. 201.

The darker marks on the head and back are sometimes evanescent, but the yellow spots on the hind part of the thighs are always more or less distinctly visible. The chin is cancellately reticulate, sometimes speckled with dusky sometimes altogether of that color. The color of the body above varies at the will of the animal.

It is wrong in Dumeril and Bibron to say that this species is a variety of H. squirella. In shape and size the difference is most considerable. The latter animal during the warm season is always to be met with about houses, the H. femoralis never. Besides, their notes are entirely different.

H. SQUIRELLA. H. squirella Daudin, l. c. p. 18. Calamita squirella Merrem. p. 171, No. 13. Auletris squirella Wagl. p. 201.

Color varying at the will of the animal from green to brown of different degrees of intensity, spotted and speckled irregularly with darker or dusky and sometimes with paler, often however of a uniform color. A darker line extends from the nostrils to the eyes and through them to the insertion of the arm (this is sometimes evanescent); beneath this darker line extends a white one which reaches nearly to the groin; sometimes interrupted or broken into three or four parts. The dark line on the vertex between the eyes never fails entirely, although it is sometimes reduced to a rather large spot on each eyelid. Toes not so much palmate as in the preceding species.

H. DELITESCENS. H. delitescens L. C. l. c. p. 181. Holbrook, l. c. pl. 32.

Variable at will from cinereous to brown, more or less distinctly spotted with darker. Differs especially from the former in having a larger and blunter head. The exterior portion of the thighs and the whole of the under side of the arms and legs is yellow, the legs also are not barred, but varied and speckled with darker, chin and throat smooth. Toes as in the preceding species.

Inhabits Georgia. In the spring it is found very numerous under the bark of dead trees.

H. PICKERINGII. Hylodes Pickeringi Holbrook, l. c. pl. 34.

Above smooth, light-brown or fawn-color with lines and spots or specks of dusky, the first of these most frequently arranged so as to form an oblique angled cross, a line of the same color on the top of the head forming an angle pointing backwards, and another extending from the nose to the insertion of the arm, this last sometimes not apparent, indeed all the dusky marks are frequently so indistinct as to be scarcely observable, beneath whitish granulate, arms and legs marked with transverse bars of darker or dusky.

This is a true Hyla and not an Hylodes; it is never found in the water, but on the leaves of plants and under the bark of dead trees.

H. OCULARIS. H. ocularis Daudin, l. c. p. 32. Hylodes ocularis Holbrook, pl. 35.

Above brown or bronzed or silvery grey, very finely speckled with dusky or darker, a tolerably wide band of black proceeds from the tip of the nose to the middle or beyond the middle of the sides, this is bordered beneath with white. Chin and under side of the thighs speckled with black. Legs speckled like the back and more or less spotted and barred with dusky, fingers and toes all furnished with small disks.

Length .6.

Inhabits Georgia. The smallest of all known Ranina. From the small size of this and the preceding species, the web between the third and fourth toes is not very perceptible.

SCAPHIOPUS Holbrook.

S. SOLITARIUS Holbrook, iv. pl. 27.

Above olive brown, dusky, of various shades, with blotches of darker or black, and two lines of pale yellow or whitish from the orbits to the vent, and sometimes another of the same color on the sides; tympanum small, pale olive. Back warty, the warts of different sizes and colors, some of them dark brown or dusky, others orange colored or red.

This curious animal so much resembling a frog in its maxillary and palatine teeth, and a toad in its parotids, the form of its body and its subterranean life, gives a fair example of some of our systematic arrangements. It has been placed by M. Dumeril among the frogs, when to all intents and purposes it is

as much a toad as any of the genus Bufo. The flat spur, as it has been called, at the root of the first toe on the internal margin of the metatarsus, is nothing more than a much developed form of a scale or disk occupying the same situation in most animals of this family.

Although very seldom seen except when accidentally turned up by the spade or the plough, yet the Scaphiopus is a very common animal in Georgia. Whenever the South East storms occur at the Autumnal Equinox, the surface of the earth is covered with them, and their dismal croakings add to the horror of the howling winds and the deluges of water which pour down from the heavens.

They have also been found in Connecticut and Massachusetts. When placed upon the ground they dig with remarkable celerity, and soon entirely bury themselves in the earth.

BUFO.

B. MUSICUS Daudin l. c. p. 92, pl 32. B. lentiginosus Holbrook v. pl. i.

This species like all its congeners varies very much in color and in the form and disposition of the spots. This variation depends entirely on the will of the animal. It is generally however of a very dark dusky, sometimes light grey and even reddish. I cannot conceive how it has ever received the name of *lentiginosus*, which as I have shown before under Telmatobius is as unlike this animal as any species can be. The Rana lentiginosa of Shaw, of which he gives in his general Zoology a tolerably good figure, although copied from Cateby, is perfectly smooth, more resembling a frog than a toad, and therefore well called by him the land frog; whereas the B. musicus is very rough and makes no approach to a frog in its form and habits. It walks rather than hops. Bartram's red toad of Florida was a mere variation of this species, the difference being nothing more than an accidental or voluntary change of color.

The species figured under the name of Bufo cognatus of Say, in the exploration of the Red River of Louisiana by R. B. Marcy, Capt. U. S. A. appears to be this animal.

B. AMERICANUS L. C. l. c. Holbrook l. c. pl. 4.

This species like the preceding varies very much in color; it rather hops than walks.

B. ERYTHRONOTUS Holbrook, l. c. v. pl. 2.

Not having been able for years to obtain a living specimen of this animal I shall say nothing more of it than that it bears not the slightest resemblance to the Bufo lentiginosus (B. musicus) as stated by Mr. Girard in Proceed. A. N. S. vol. p. 86.

B. QUERCICUS Holbrook, l. c. v. pl. 3.

Above thickly covered with small warts,, dusky with a few irregular black spots, many of the warts particularly those on the sides whitish or reddish; a very distinct line of one of these colors runs from the point of the nose along the vertebral column to the vent. Beneath the body is granulate, white, more or less varied particularly on the fore part with black. There is a supraorbital ridge straight and very distinct; upper jaw slightly emarginate. Thumb equal in length to the first finger, feet with two calli, the interior one exactly resembling a toe and equal in length to the first toe.

Length 1. 1, arm .6, leg 1 inch.

Very common in Georgia in wet places, under logs and pieces of wood.

ENGYSTOMA Fitzinger.

E. CAROLINENSE. Microps Wagler, Stenocephalus Tschudi.

Varying at will very much in color, from dusky to brown, olive-cinereous or yellow cinereous, more or less varied, spotted or speckled with black, beneath pale brownish white, punctate so as to appear spotted.

Very common in the low country of Georgia under logs. In De Terville's Natural History, Bosc confounds this animal with Daudin's Bufo gibbosus. He

says he found it in South Carolina, but brought none thence to France, as the skin was so thin and tender, that he was unable to preserve or even describe it: to me the skin appears as strong as that of any other species of Ranina of the same size.

These are all the species of this family of reptiles which I have been able to see in a living state. I hold it to be impossible for any one to make a correct description of an animal which has the power of changing its color at will, unless he has it alive; and this power they all possess in a greater or less degree; when preserved in alcohol they always fade. The difficulty of procuring descriptions made on the spot where the objects are found, has rendered this part of natural history as confused and unsatisfactory, as the researches of botanists who draw up their accounts of plants from dried specimens.

There are a few species with which I was formerly acquainted but which I have not met with or been able to obtain. Among these are a frog which seemed intermediate between R. pipiens and R. palustris, two Hylæ inhabiting Georgia, and another probably an Acris which I formerly described in the Annals of the Lyceum of New York under the name R. pumila. Mr. Baird describes some in the Proceedings of our Society, which have been sent to him from Texas, Mexico, and other remote parts of our country. These I do not here treat of, being certain that I shall never see them in a living state. There is in the waters of ponds and ditches a small frog whose note exactly resembles the bleating of a lamb, so truly as to deceive any one. This animal I have seen, but never succeeded in catching it. It is very common in Georgia and I have heard it as far north as Norfolk in Virginia. It is left to the inhabitants of those parts of our country to determine what it is.

Observations on the North American species of Bats.

By John Le Conte.

Notwithstanding all that has been written by Rafinesque, F. Cuvier and Dr. Bachman on the bats of North America, a diligent study has shown me considerable errors in the accounts of all. Before proceeding to a description of these animals, it is necessary to remark, that every bat which I have seen, has an uncertain numberof transverse wrinkles or plaits on the outer portion of the ear, and has the toes furnished with rather long and fine hairs, as it were fimbriated, wherefore these two marks are omitted as furnishing no good specific characters. All our bats except the Molossus belong to the same genus; the trifling difference in the number of the teeth does not afford a sufficient reason for considering them as different. M. F. Cuvier in the first volume of the Nouv. Annales du Museum, divides the genus into three sections, the Serotinoids, the Noctuloids and the Murinoids. The form of the cranium seems to be the chief mark in distinguishing them from each other. The Serotinoids may be described as having the cranium somewhat inflated and rounded, the jaws short, widened and elevated at the extremity, the facial angle 43°. The European species as far as I can collect, have four upper incisors. In this country we have but two belonging to this section, the Noveboracensis and the cinereus, both of which have but two upper fore teeth. The Noctuloids have the skull rather straight and flat on the top, and the jaws more extended, the facial angle is 30°. They all have four upper incisors except the crepuscularis which has like those of the first division but two. The Murinoids are known by having the cranium inflated and rounded, the jaws elongated a little raised in front with a considerable depression separating them from the cranium, the facial angle is 22°. The V. pallidus which has but two upper fore teeth appears to me to be a Murinoid; all the rest have four upper fore teeth. As for what has been called a Plecotus (even by myself) it certainly belongs to this division: it differs considerably from the Plecotus auritus of Europe, in the form and position of the ears. I am not writing about the animals of a foreign country, and therefore I say no more on

this head, than that the P. auritus as far as regards the skull appears to be a Serotinoid. My remarks on the Molossus will appear when I come to describe that species.

VESPERTILIO NOVEBORACENSIS Linn. New York bat, Pennant Arctic Zool. vol. i. p. 184. V. rubellus Palisot de Beauvois, Catalogue of Peale's Museum. V. monachus and tessellatus Rafinesque. Nycticeius Atalapha and Atalapha americana ejusd. Taphyzous rufus Lesson. It likewise belongs according to Leach to his genus Scotophilus, Taphizous rufus. Harlan's description is made from an infamous figure in Wilson's Ornithology.

Dentition. *Upper Jaw*, incisors 1-1 simple, distant. Canines 1-1, hollowed out behind with a perpendicular septum dividing the concavity for its whole length False molars 1-1, concave on the outer and inner surfaces, the calcaneum produced behind into a lobe. Molars 3-3, the first and second with six cusps, three exterior, small apparently formed from the basal ridge which surrounds the teeth; two intermediate and one exterior; the third with three cusps ranged transversely and one posterior.

Lower Jaw. Incisors six, bicmarginate. Canines 1-1. False molars 2-2, the anterior one very small. Molars 3-3, with five cusps, two exterior and three interior, the basal ridge wanting interiorly.

A young one taken from the mother's breast, had in the upper jaw, the incisors, the canines, and the false molars; in the lower jaw, the canines and one false molar on each side, all of them hooked like the claws of the toes.

Face black, hairy; nose blunt, emarginate. Ears brown, short, round, almost concealed in the fur, a little hairy, orillon cultriform, blunt, one half the length of the ear, and sparely hairy. Membrane dusky, generally reddish brown along the antibrachium, and more or less so along the great part of the length of the fingers; a portion of the base on each side is hairy, so as to form a straight line from the shoulder to the foot; spot at the base of the thumb white, a few hairs of the same color or of rufous extend down the fourth finger: beneath from the body to the end of the os humeri it is thickly covered with rather long hair, along the fore arm more sparsely so, for nearly one half the width of the wing. The interfemoral membrane includes the whole of the tail, on the upper surface it is densely hairy, the hair being of the general color of the body, sometimes tipped with white, never cinereous at the base; on the under surface it is naked except at the base, where there is an oblong patch of hair extending along the tail, for one third of its length. Feet black, thickly covered with hair.

Color extremely various, scarcely any two being found exactly alike. A very common variety has the hair above four-colored, that is to say, black or dark cinereous at the base, then yellowish brown or fawn-colored, afterwards dark rufous or reddish brown, or orange-tawny or purplish brown, finally very slightly tipped with white, very often with a distinct ring of a darker shade around the neck. Beneath, the hair is three colored, the base dark or light cinereous, then one of the other colors, and tipped with white, so that the pelage is varied with cinereous and the other colors, and powdered over with white: this last color forms a conspicuous spot at the axilla. The pelage is however above sometimes only three-colored, being as before dark cinereous at the base, then pale yellowish, and afterwards bright light rufous or orange without any white tips or very few of them, so as to appear uniformly rufous or orange, beneath rather paler. The lighter the color above, the more does the membrane incline to reddish brown. They have been found of a uniform cream color, and even white, the base of the hair being always cinereous, but are most commonly of different shades of rufous or tawny. The darker the ground the more apt are the hairs to have white tips, although some of dark shades have been found without any of these.

Length 2 in. Tail 1.6. Extent 11.3. Head ·7. Ears ·25. Orillon ·1.

This, the commonest species in the United States, is found everywhere from Canada to Florida, from one end of the country to the other equally numerous. It may even extend into South America, as the description by Lesson of the V. bo-

nariensis in the Zoology of the voyage of the Coquille agrees very well; but the figure of the animal which accompanies it is so wretchedly executed, as to be of no use in determining the point.

V. CINEREUS. Palisot de Beauvois, l. c. V. pruinosus Say, Long's Expedition vol. i. p. 168.

Dentition the same in every respect as in V. noveboracensis. Hair above four-colored, that is to say, black at the base, then reddish-brown, afterwards black, and tipped with white: beneath two-colored, the lower half dark cinereous, the upper yellowish or grey, so that the pelage of the animal appears on the upper side, variegated with reddish brown and black, and powdered over with white, this latter color so disposed as to form transverse curved and waving lines, on the under side, yellowish grey on the sides and cinereous mixed with grey on the other parts. Head above and throat yellowish grey; face hairy; chin very dark brown: nose flat, blunt, emarginate. Ears black, simple round, densely covered both within and without on the anterior portion, with short yellowish grey hair, leaving a distinct narrow, naked margin. Orillon cultriform, blunt and sparsely hairy, half the length of the ear. Membrane dusky, for one third its breadth along the arm brown; sometimes beyond this spotted with brown, very much so near the body. A portion next the body in a straight line from the shoulder to the feet is hairy. There is generally a small white hairy spot at the anterior joint of the humerus (sometimes however the hairs are pale brown, not white), and another at the base of the thumb. The membrane beneath is hairy as far as the third finger for nearly half its breadth, this hairy space joins another of the same width along the sides, and there is generally a large white spot at the axilla or insertion of the humerus. Interfemoral including the whole of the tail, above densely hairy, beneath only at the base, forming a roundish deeply emarginate patch, feet black, sparingly hairy.

Length 3 inches. Tail 2·1. Extent 16·8. Head ·94. Ear ·48. Orillon .25.

I have given to this species the name imposed upon it by Palisot de Beauvois, ann. 1796 in the catalogue of Peale's Museum, although I am not certain that it differs from the V. lasiurus of Linnæus. This last is said by Temminck to inhabit Cayenne and North America. The description of Temminck suits our animal very well, but whether the two are the same, remains yet to be determined. The figure in Schreber is undoubtedly taken from a V. noveboracensis The V. bonariensis described and figured by Lesson in the Zoology of the voyage of the Coquille vol i. p. 137 tab. 62, may be either the one or the other, the figure is so excessively bad that nothing can be made of it. This is the largest of all the bats found in the United States, it is not common, and is seen more frequently in the middle than in the northern or southern states.

I have never had it in my power to examine more than six or seven individuals of this species, and therefore cannot say how far the colors may vary.

V CREPUSCULARIS.

Dentition the same as in the two former species.

Hair black, above tipped with chestnut brown, beneath with paler or cinereous brown more or less distinctly varied by the black of the lower part of the hair. Head rather depressed, face flat, black, naked, with a few scattered, long, coarse hairs, and a small wart over each eye; nose broad, flat, blunt, emarginate; chin with a small double wart on the lower part. Ears shorter than the head, triangularly ovate, rounded at the point, slightly emarginate on the hinder edge, dusky, naked. Orillon short, dolabriform, blunt. Membrane very thin, dusky, naked except a narrow space next the body. Interfemoral including the tail except the two last joints naked, except a small portion of the base which both above and beneath is slightly hairy.

Length 2·2. Tail 1·4, naked part ·15. Extent 10·5. Head ·7. Ears ·3. Orillon ·19.

Inhabits Georgia.

This is the V. creeks of F. Cuvier, this name however being unmeaning and

indeed ridiculous, I have substituted for it the name given to it by me many years ago and mentioned in Dr. McMurtrie's translation of the Regne Animale.

All the species of American Bats described by the illustrious French Naturalist in Nouv. Annales du Museum vol. i. p. 1 were given by me to his brother the Baron, and I distinctly remember this species as having been among them.

V. FUSCUS. Palisot de Beauvois l. c., V. arcuatus Say, Long's expedition l. c., V. gryphus Cuvier l. c. p. 15.

Dentition. Upper jaw, incisors 2-2, the anterior one emarginate, the posterior one very small. False molars 1-1 concave on the outer and inner surfaces. Lower jaw false molars 2-2. Molars and canines in both jaws like those of the preceding species.

Hair long dark plumbeous, above tipt with chestnut brown of different shades of intensity, passing into rusty brown and fawn color, beneath with paler shades of the same colors and sometimes with cinereous brown or grey. Face black, dusky or brown, according to the darker or lighter color of the fur, nearly naked, with a few scattered coarse hairs. Nose flat, blunt, emarginate, and with the chin rugous. Ears dusky or brown, shorter than the head, outwardly hairy at the base for one third of their length, upright, somewhat triangular, blunt, the hinder edge very convex, slightly emarginate near the tip, revolute on the outer edge. Orillon acinaciform obtuse. Membrane naked, hairy only next the body, black, dusky or brown. Interfemoral including the tail, except the three last joints, naked except a triangular patch of hair at the root of the tail.

Length 3 in. Tail 1·55, naked part ·2. Extent 12·5. Head ·9. Ears ·6. Orillon ·22.

Very common particularly in the Northern States.

V. CAROLINENSIS. Geoff. St. Hilaire, Ann. du Museum, viii. p. 193

Dentition the same is in V. fuscus.

Hair dark plumbeous, above tipped with chestnut brown, beneath with cinereous brown. Face black nearly naked with a few scattered coarse hairs. Nose flat, blunt, emarginate and with the chin rugous. Ears black rather long, outwardly hairy for one half of their length, ovate, upright, blunt, revolute and emarginate on the hinder edge. Orillon lanceolate, blunt, more convex on the inner than on the outer side. Membrane black, naked, interfemoral naked except beneath, where there is a triangular patch of fur which extends from the insertion of the tail for one third its length; including the tail except its three last joints, and furnished on the under side with some scattering hairs.

Length 4 4. Tail 1·9, naked part ·2. Extent 11 8. Head ·9. Ears ·7. Orillon ·3

Inhabits Georgia and Carolina; very much resembles the preceding, but is easily distinguished by the hairy ears and the differently shaped orillon.

V. URSINUS Temm. l. c. p. 235.

Dentition similar to that of the two preceding species.

Hair dark plumbeous, above tipped with bright chestnut brown, beneath with paler or cinereous brown. Face black, naked with coarse scattering hairs; nose flat, blunt emarginate. Ears dusky, shorter than the head, hairy outwardly for nearly one fourth their length, upright, oval, entire, revolute on the outer edge, Orillon acinaciform, obtuse. Membrane black, naked, hairy only near the body. interfemoral entirely naked, including the tail except the three last joints.

Length 2·8. Tail 1·65, naked part ·2. Extent 12·75. Head ·9. Ears ·5. Orillon ·2.

Inhabits New York, rather rare.

V. PHAIOPS Temm. l. c. p. 234.

Dentition as in the preceding.

Hair dark plumbeous, above tipped with chestnut brown, beneath with paler or with cinereous brown or greyish. Face black, nearly naked with a few coarse hairs. Nose flat, blunt, rugose, emarginate. Ears black, shorter than the head, outwardly hairy for about one third of their length, somewhat triangular, upright, blunt, sinuous or bi-emarginate on the outer edge. Orillon oblong, rounded at the tip. Membrane black, naked; interfemoral naked except some scattered hairs on its under side, including the tail except the three last joints.

Length 2·5 in. Tail 1, naked part ·15. Extent 12·5. Head ·35. Ears ·425. Orillon ·2.

Inhabits the Northern States.

V. Caroli Temm. l. c. p. 237.

Dentition as before.

Hair long dark plumbeous, above tipped with dark chestnut brown, beneath with paler or greyish or yellowish cinereous. Face black, naked with a few coarse hairs. Nose flat, blunt, emarginate, rugous. Ears short, black, naked except for about one fourth their length from the base on the outer side, emarginate behind almost from the tip to the basal lobe. Orillon lanceolate, blunt, rounded at the tip, a very little curved on the posterior edge, straight on the anterior. Membrane black, naked, except near the body. Interfemoral naked except a few scattered hairs near the body; including the tail, of which the last joint projects beyond it.

Length 3·8. Tail 1·5, naked part ·1. Extent 11·7. Head ·75. Ears ·45. Orillon ·2.

Inhabits from New York to Florida.

This with the four preceding are very nearly related to each other, so much so as to be easily taken the one for the other; we therefore find them all called V. arcuatus of Say or V. caroliniensis of Geoff. St Hilaire, these two being considered identical. They however differ in the shape of the ear and in the orillon. These two parts alone I have found in all species of Vespertilionidæ to afford unvarying characteristics.

The *fuscus* has the ear somewhat triangular, very concave on the outer edge and emarginate near the tip, the orillon acinaciform.

The *carolinensis* has the ear hairy for one half its length, ovate and emarginate on the hinder edge, the orillon is lanceolate and blunt.

The *ursinus*, ear oval, entire; that is to say not at all emarginate, the orillon acinaciform and obtuse.

The *phaiops*, ear somewhat triangular, sinuous or bi-emarginate on the outer edge, orillon oblong, blunt.

The *caroli* has the ears ovate, emarginate behind almost from the tip to the base, and the orillon lanceolate, blunt, rounded at the point; a little curved on posterior edge.

V. pulverulentus Tem. ii. p. 235. V. Audubonii Harlan, Med. & Phys. Researches, p. 90. V. noctevagans L. C. olim.

Dentition the same as in the five preceding species, except that the false molars in the upper jaw are 2–2, the anterior one frequently pressed inward by the posterior one; and in the lower jaw the false molars are 3–3.

Hair black or very dark brown, generally tipped with white or pale brown, or brownish grey in rather a scattering manner. Face somewhat hairy, nose blunt emarginate; fore part of the throat with a large wart. Ears moderate, ovate, blunt, the lower half covered with hair, granulate within the outer edge which is somewhat revolute and entire, anterior part of the helix highly developed, prominent and straight, forming a winged appendage near the head. Orillon short, culriform, blunt, membrane naked black or dusky, interfemoral including the tail, except the last and one half of the penultimate joint, thinly covered for one half its length with long fine hairs like those of the body tipped very slightly with greyish, the under side is furnished with distant hairs disposed in lines.

Inhabits from New York to Georgia.

This species has the head of a Noctuloid and the teeth differing from all the others. Is sometimes found entirely black.

V. subulatus Say, Long's Expedition, vol. ii. p. 65.

Dentition. Upper jaw, incisors 2–2 distant by pairs, the anterior larger and emarginate, false molars 3–3 anterior one small, intermediate one minute and the posterior large. Molars as in all the preceding species. The teeth in the lower jaw are also the same except that there are 3 false molars on each side, the two anterior of which are not half the length of the posterior.

Hair above black, tipped with very dark chesnut brown or with dark fawn color, beneath dark cinereous tipped with brownish grey. Face black, hairy, nose blunt, slightly emarginate. Ears black, moderate, very slightly hairy at the base, ovate, emarginate on the posterior edge. Orillon subulate, pointed. Membrane naked dusky or dark brown, a little hairy next the body, the humeral portion extending beyond the bone into an angle. Interfemoral hairy near the base for about one-third its length both above and beneath, including the tail except the last joint and one half of the penultimate.

Length 2.9. Tail 1.1. Naked part .1. Extent 9.4. Head .9. Ears .4. Orillon .3.

Inhabits everywhere. Varies much in color from the darkest chesnut to light fawn. With this species, commences the family of Murinoid bats.

V. LUCIFUGUS L. C. in Dr. McMurtrie's translation of the Regne Animal. Dentition the same as in V. subulatus.

Hair dark plumbeous, above tipt with dark chestnut brown, beneath with pale brown. Face black, hairy, nose flat, blunt, rugose, emarginate. Ears black, naked, except about one fourth their length outwardly from the base, so much emarginate outwardly as to appear hooked. Orillon lanceolate, blunt, a little convex on the outer edge, straight on the inner. Membrane black, naked except near the body. Interfemoral naked, except a few scattered hairs on the under surface, including the tail except the last joint.

Length 3.8. Tail 1.6. Naked part .1. Extent 11.7. Head .75. Ears .45. Orillon .2.

Inhabits Georgia.

Much resembles the preceding but has the ears of a different form as well as the orillon.

V. GEORGIANUS Cuvier l. c. p. 16.

Dentition the same as in subulatus except that the posterior false molar of the upper jaw has an interior, basal, bi-emarginate cusp formed from a prolongation of the calcaneum of the tooth, and the canine of the lower jaw has an interior, blunt, basal lobe.

Hair dark plumbeous, above tipped with bright rufous, the hair so arranged that the pelage appears varied with black particularly on the upper part of the back, beneath the hair is tipped with fawn color or rufous. Face black, very hairy, nose flat, blunt, rugose, emarginate. Ears perfectly naked, short, ovate, blunt, slightly emarginate on the outer edge, orillon oblong, blunt, straight. Membrane dusky or very dark brown slightly hairy next the body. Interfemoral above thinly furnished with rather long hairs for nearly one half its length, beneath with a few scattering hairs which spring from the transverse nervures, including the tail, except the last joint and one half of the penultimate.

Length 3 in. Tail 1.6. Naked part .1. Extent .9 in. Head .55. Ears .35. Orillon .2.

Inhabits Georgia.

Said by Dr. Bachman to be same with the V. subulatus which it very slightly resembles.

V. MACROTIS. Plecotus macrotis L. C. McMurtrie's translation of Cuvier's Regne Animal, Appendix.

Dentition. Upper jaw incisors 2-2, the anterior bilobed, the posterior smaller. False molars 2-2, the anterior one very small, the base of the posterior one projecting backwards into a flat, sharp surface. Molars and canines as before. Lower jaw, incisors 6, crenate. False molars 3-3, the two anterior small. Molars and canines as in other species.

Hair black above slightly tipped with dark chesnut brown, beneath with whitish, sometimes entirely black both above and beneath, except a small cinereous space near the arms. Face black nakedish, with a prominent tubercle on each side behind the nostrils, these tubercles converge towards each other, leaving a considerable hollow space on the top of the head, which is flat, the nose not bilobed. Ears ovate broad, naked, dusky, much longer than the head, bending forwards, the hinder margin somewhat involute, the inner margin

near the base hairy. Orillon long, subulate, broad at the base a little convex on the inner side. Membrane naked dusky, interfemoral including the tail except the last joint.

Length 2.1. Tail .2. Naked part .1. Extent 10 in. Head .75. Ear 1.05. Orillon .35.

Inhabits Georgia.

This species though at first sight very much resembling the so called Plecotus auritus of Europe, differs from it particularly, in having the ears perfectly separated at the base, and wants the small lobe or blunt tooth on their inner edge. The cranium is entirely that of a Murinoid bat, and the teeth of the two species agree.

V. PALLIDUS.

Dentition. Incisors 1-1, large simple. Canines 1-1, a little concave on the outer side, with an internal, basal, rather blunt cusp. False molars 1-1. Molars first and second as in all the others, the third with four cusps, three of them transverse, the interior one smaller, and one posterior.

Lower jaw incisors .4. False molars 2-2, the anterior one smaller, rather interior. First and second molars as in others, the third with three cusps, not transverse, the interior one larger and transversely deeply emarginate.

Hair light fawn-colored, tipped with darker, beneath paler. Face hairy dark brown. Nose rounded, emarginate. Ears longer than the head, oval, entire, very pale dusky brown. Orillon nearly one half the length of the ear, linear, blunt. Membrane thin naked brown. Interfemoral including the tail except the two last joints.

Length 3. Tail 1.5. Naked part .1. Extent 12.1. Head .9. Ears .95. Orillon .4.

Inhabits California.

Differs from all the other species in having but 4 lower incisors; I hesitate therefore to arrange it with the Serinoid or Murinoid Bats and place it at the end of these two families.

RHINOPOMA CAROLINENSE Geof. St. Hilaire, Dict. de Sciences Naturelles tome xlv. ann. 1829. Nycticea cynocephala L. C. M'Murtrie's translation of Cuvier's Regne Animale vol. i. appendix. Molossus cynocephalus and fuliginosus Cooper, Ann. Lyceum New York, vol. iv. p. 65.

Dentition. Upper jaw, incisors 1-1, simple, distant, convergent at the points so as almost to meet. Canines 1-1 curved outwards, so deeply grooved in front as to appear almost double. False molars 2-2 the anterior one very small, the posterior one with a sharp basal cusp. Molars 3-3, the first and second with seven cusps 3 exterior, 2 intermediate and 2 interior, the third with five cusps 2 exterior, 2 intermediate and 1 interior. Lower jaw incisors 6, approximate, emarginate. Canines 1-1, simple slightly curved inwardly. False molars 2-2, the anterior one smaller. Molars 3-3 each with 2 exterior and 3 interior cusps.

Hair fine and soft, cinereous tipped with brownish dusky, beneath rather paler. Face naked, nose turned up, broad, blunt, channeled on the top, crenately serrate on the front margin, upper lip very large, tumid, pendulous, with eight perpendicular grooves. Ears projected forwards, broad, rounded, not united on the top of the head, but running down the sides of the forehead to the root of the nose, outwardly produced downwards and forwards to the corner of the mouth, and very obtusely emarginate about one third of the distance from the top, the upper part has inwardly from eight to ten small rather pointed tubercles near its margin. The ears have likewise an internal fold and a small thick round fleshy lobe opposite the orillon and concealing it from view. Orillon small oblong and rectangular; the lower part of the outer edge of the ear is double as in many other animals, for instance in cats and dogs. Membrane rather thicker than common, naked, dusky, the interfemoral above more or less thinly covered with short and soft hair, including the tail, one third part of which projects beyond it. The inner and outer toes wooly outside, the outer toe somewhat opposable to the others.

Length 2.5 in. Tail 1 25. Extent 10.2. Head .95. Ears .4. Orillon .1.

Inhabits Georgia and South Carolina.

It is very remarkable what confusion exists in authors with regard to the genus of this animal. It was called by Geof. St. Hilaire in 1805 Molossus, afterwards in 1814 Nyctonomus, again was described by him as Rhinopoma caroliniense; it likewise belongs to the genus Dysopes of Illiger and the Dinops of Savi, yet none of their descriptions either of the genus or the species appear to be correct; they all seem to have confounded this North American bat with the Melossus velox certainly an inhabitant of South America, and plainly belonging to a different genus. Mr. Cooper in the Annals of the Lyceum of New York has made two species of it, Molossus cynocephalus and M. Lecontii, founding the difference in the plaitings of the ears in the latter. As I have before observed this is a character common to all bats: in dried specimens these striæ frequently are evanescent.

M. Temminck's remark on the fore teeth of his Molossus that they vary in number and are pushed out of place by the canines is a mere supposition. Age of course causes the teeth to fall out, when the base of the canines will advance somewhat, and cover the open alveoli, but in most cases, these always remain open, or at most one or two of them may close as is observable in other animals that have the misfortune to lose one or more of their teeth. In the M. velox which has but four incisives in the lower jaw, placed in front at the base of the canines, he supposes them to have been once situated in a space between the canines, and afterwards to be pushed out in front (without any presumable function) of their almost united bases; an impossibility. This position of the lower fore teeth is to be seen in every age of the animal.

I have observed fifteen individuals of this species: one had no incisors in the lower jaw; two had five; three had four, and the rest six.

This Bat is so numerous in the cities of the South as sometimes to render houses uninhabitable, by their disagreeable smell, and the noise which they make in moving about. It appears to be equally common in the island of Cuba.

Of Bats described by others, the following with but one exception I have never seen, Dr. Bachman in the viii. volume of the Journal of this Society, mentions four species: V. monticola he says resembles Say's bat; what species he calls by that name I cannot discover. V. virginianus seems to be the V. humeralis of Rafinesque. I have not seen this last for many years, and therefore cannot pronounce definitely concerning it. The V. Leibii and Californicus are equally unknown. Of Mr. Rafinesque's species, it is impossible to determine the following; there is a good reason however to doubt, whether they are distinct from others which are well known; V. cyanopterus, V. melanotis, V. calcaratus, V. phaiops afterwards described in his Annals of Nature No. 1 as Eptisecus melanops, V. megalotis, V. mystax afterwards called in the Journal de Physique vol. lxxviii. p. 417, Hypexodon mystax and Eptisecus melas. M. Cuvier's V. Salarii may be the fuscus, and his subflavus the Caroliniensis; his crassus likewise I cannot determine. M. Temminck's V. erythrodactylus, Temm. vol. ii. page 235, remains among those unknown by me.

Notices of some new and little known Birds in the collection of the U. S. Exploring Expedition in the Vincennes and Peacock, and in the collection of the Academy of Natural Sciences of Philadelphia.

By JOHN CASSIN.

1. MUSCIPETA CYANICEPS, nobis.

Form. Bill rather long, wide at base, abruptly compressed towards the end and furnished with about six pairs of strong rigid bristles at the base, some of which are as long as the bill. Feathers of the head above somewhat elongated and probably erectile, wings rather long, fourth primary longest, tail long, wide, central feathers but slightly exceeding others next to them, tarsi rather long, slender, toes short, feeble.

Dimensions. Total length (of skin) about 6¼ inches, wing 3, tail 3¼ inches.

Colors. Entire head and breast dull blue, every feather having a longitudinal central line of a paler shade or light blue. Upper parts of the body, the abdomen and several of the outer feathers of the tail fine rufous, palest on the abdomen, quills dark brown, secondaries edged with rufous. Central feathers of the tail dark brown, which is the color also of the inner webs of the feathers next to them. Bill dark, tarsi lighter.

Hab. Philippine Islands. Spec. in Coll. Ex. Exp. in Nat. Mus. Washington.

Obs. This is a very handsome small species of this genus, and bears a resemblance to *Muscicapa borbonica*, Gm. Buff. Pl. Enl. 573, fig. 1, which is an inhabitant of the islands of Madagascar and Mauritius. From that species the present birds may easily be distinguished by the pale longitudinal lines on the blue parts of the plumage, in addition to which it is larger and has the tail disproportionately longer.

The only specimen that I have ever seen of this species is in the collection of the Exploring Expedition, and is labelled as having been obtained at the Philippine Islands. It belongs strictly to the same subgeneric group as *M. borbonica*, and shows a general relationship to several other African species. It will be figured in the forthcoming Atlas to my volume on the Birds of the Exploring Expedition.

2. LANIARIUS MULTICOLOR. G. R. Gray, Genera of Birds, i. p. 299, pl. 72.

Hab. Western Africa. Spec. in Mus. Acad. Philad.

Obs. A single specimen of this handsome species is in the collection of the Academy, and was obtained by Dr. MacDowell, on St. Paul's river, Western Africa.

3. HYPHANTORNIS FLAVIGULA, Hartlaub, Rev. Zool. 1845, p. 406.

Hyphantornis Grayi. Verreaux, Rev. et Mag. de Zool. 1851, p. 514.

Hab. Gaboon country, River Moonda. Spec. in Mus. Acad. Philada.

According to Mr. DuChaillu, in whose collection are numerous specimens, the birds described as above are the two sexes of the same species. *H. flavigula* is the female.

In Mr. DuChaillu's notes now in my possession I find the following in relation to this species:

"This bird frequents the borders of the woods, or more frequently the tufted bushes which are not found far from habitations. It is always in these thickets, and if it were not for its cry, which indicates the place where it may be found, it would be very difficult to procure it. It is always in company with its female, and does not live in troops. Sometimes two pairs may be seen on the same tree. This bird generally makes its nest in these very thick bushes and in the midst of the leaves; the two nests in my collection, I found within ten yards of a house, and both contained eggs of a rose color."

"This bird is found in the dry season and at the commencement of the rainy season, when it disappears."

4. SYCOBIUS NIGERRIMUS, (Vieill.)

Ploceus nigerrimus, Vieill.

Hab. Gaboon country and River Moonda. Western Africa.

Several specimens of this rare species, remarkable for the uniform deep black of its plumage, are in the collection of the Academy. Some of them were collected by Mr. DuChaillu on the River Moonda, and others have recently been obtained in a collection from the Gaboon country, obtained in New York by Mr. John G. Bell.

5. SYMPLECTES PRINCEPS. Bonap. Consp. Av. p. 107.

Hab. Lagos, Western Africa.

A specimen of this bird is in an interesting collection made by John L. Burt, M. D., of the U. S. Navy, at Lagos, and recently presented to the Academy.

6. HYPHANTORNIS CASTANEOFUSCA, (Less.)

Ploceus castaneofuscus, Lesson.

This bird is in Dr. MacDowell's collection from St. Paul's river, Western Africa.

7. TURACUS GIGANTEUS, (Vieill.)
Musophaga gigantea, Vieillot.
This bird is also in Dr. MacDowell's collection from St. Paul's river.

8. MOHOA NOBILIS (Merrem.) Temm. Pl. col. 471.
Gracula nobilis. Merr. Beyt. zur Besond. Gesch. Vögel p. 8, pl. 2 (1784 name on plate.)
Merops niger. Gm. Syst. Nat. i. p. 465 (1788.)
Merops fasciculatus. Lath. Ind. Orn. i. p. 275 (1790.)
Hab. Sandwich Islands. Spec. in Mus. Acad. Philada. and Nat. Mus. Washington.

The specimens in the collection of the Academy were brought by Dr. Townsend from the Sandwish Islands, and in the collection of the Expedition in the Vincennes and Peacock are numerous specimens which appear to represent both sexes. The female much resembles the male, but is smaller and with the colors duller, with tinges of brown on the throat and occasionally on the upper parts of the body. Both sexes have the tail long.

At present, I regard the bird figured by Reichenbach in "Die Volstandigste Naturgeschichte" Birds, pl. 604, fig. 4099, and described in "Handbuch der speciellen Ornithologie," Scansoriæ p. 333, as a distinct species, though given by that distinguished naturalist as the female of "Mohoa fasciculatus" (fig. 4098). It is as follows:

9. MOHOA BRACCATA, nobis.
Smaller than the preceding, bill less curved, tail moderate, central feathers longest.

Tibiæ yellow. Head above black, throat and breast with every feather having a small terminal spot of ashy white, back, rump, and under parts dark chocolate brown, with a few longitudinal lines of white on the back. Wings and tail brownish black, the former edged with white at the shoulder. Bill and feet dark.

Dimensions.—Total length 8½ inches, wing 3¾, tail 3½ inches.

Hab. Sandwich Islands. Spec. in Mus. Acad. Philada.

The only specimen that I have ever seen of this species was brought by Dr. Townsend from the Sandwich Islands and is marked as a male. It has heretofore in the collection of the Academy been mistaken for *Certhia pacifica* Gmelin, but is clearly not that bird and but little resembles it as far as can be determined from the plate in Audebert, or from the descriptions by Gmelin and Latham. In addition to these two there is a third species of this genus.

10. MOHOA ANGUSTIPLUMA, (Peale.)
Entomiza angustipluma. Peale Zool. Exp. Vincennes, Birds p. 147 (1848.)

Plumage of the head, neck and breast, with the webs of the feathers composed of few filaments and presenting an open or skeleton like texture, many feathers of the throat terminated with bristles. Bill curved, wings rather long, tail long wedge shaped, legs and feet strong. Larger than either of the two preceding.

Head and neck above dark brown, every feather having a longitudinal central stripe of dull white, tinged with greenish yellow on the latter. Other upper parts including wings and tail, brown, on the back with longitudinal stripes of white, quills and tail feathers edged with olive green on their outer webs, rump tinged with olive. Wide stripe from the base of the bill under the eye, ending in a large spot on the cheek, black.

Throat dull white tinged with yellow, breast and abdomen dull white, every feather margined with dull brown, flanks and under tail coverts dark rufous, bill and legs dark.

Dimensions. Total length 13½ inches, wing 6, tail 6½ inches.

Hab. Hawaii. Spec. in Nat. Mus. Washington.

One of the most remarkable of the ornithological acquisitions of the Expedition in the Vincennes and Peacock, and clearly of this genus. The feathers of the head and breast in this bird present a singular character on account of the filaments composing the webs being unusually few, and at such a distance from each other as not to touch, nor become adherent. The specimen described may

not be adult and its sex is not stated. It does not appear to be related to *Strigiceps*, Lesson.

This species will be carefully figured in the Atlas to my volume on the Quadrupeds and Birds of the Exploring Expedition now nearly ready.

Note on the Miocene and Post-Pliocene deposits of California, with descriptions of two new Fossil Corals.

By T. A. Conrad.

Post-Pliocene deposits of shells occur at various places on the coast of California, as Santa Barbara, San Pedro, &c., but I have seen specimens of Miocene fossils from no other locality on the coast than near the former town, where they were obtained by Dr. Heermann, who informs me that they are very little elevated above the sea, and that the Post-Pliocene fossils rest immediately upon them. This Miocene deposit consists chiefly of fine loose brown sand and small corals, the most of which are a species herein described as *Idmonea Californica*. The shells have been described in the Proceedings for February, 1855, p. 267, and consist of *Mercenaria perlaminosa*, *Pecten Heermanni*, *Diadora crucibuliformis*, *Pandora bilirata* and *Cardita occidentalis*.

The *Mercenaria* and *Pecten* are closely related to species of the Virginia Miocene, and indeed there is an extraordinary analogy in all the above mentioned shells to species of the Atlantic Miocene deposits; and what is equally remarkable, they have no resemblance to the existing California species, many of which are imbedded in sand above them; affording perhaps a stronger contrast between the two groups than occurs in any other part of the world. The Atlantic Miocene and Post-Pliocene on the contrary contain a few species in common and others which are analogous.

IDMONEA, *Lamouroux.*

Idmonea Californica. Branches compressed, slender, bifurcated; tubular openings projecting, irregularly grouped, but disposed to form in transverse series; longitudinal line between the openings or cells, microscopic or obsolete; reverse surface plano-convex, tranversely wrinkled and slightly furrowed; section exhibiting 15 to 20 angular pores.

The branches of this species are about ¼ of an inch wide. I have not seen any among them anastomosed. It belongs to the genus *Crisisina*, D'Orbigny.

Among these corallines, is a species of *Tubulipora*, a *Retepora* and a *Lichenopora* which may be named

Lichenopora Californica. Adhering; tubular openings numerous, arranged in irregular branching rays; central depression rather deep and with numerous unequal pores. Diameter about ½ of an inch.

Post-Pliocene.

Near Santa Barbara and San Pedro, Dr. Heermann collected a number of fossil shells of the same species which inhabit the adjacent coast, among which are *Platyodon cancellatum*, Conrad, *Schizothærus Nuttallii*, Con., *Venus Nuttallii*, Con., *Tellina nasuta* and *Tapes diversa*, Sowerby, among the bivalves, and a number of univalves.

Description of a new species of Pentamerus.

By T. A. Conrad.

Pentamerus laqueatus. Ovate; larger valve inflated, with about 28 angular ribs; mesial ridge but little prominent, with 5--6 ribs rather larger than the others; smaller valve slightly ventricose with a wide but shallow depression on each side; basal margin sinuous.

Locality. Delphi, Indiana. Mr. Hill. This species resembles *P. Aylesfordii*, but is quite distinct.

Description of two new species of Hesperomys.

By JOHN LE CONTE.

Dr. Bachman, in Audubon's Quadrupeds of North America, states that the Hesperomys leucopus inhabits the southern regions of our country. Although I have resided in the lower part of Georgia for a great portion of my life, I never saw it there. There are however two species which he seems to consider the same, and which he has confounded with the northern animal. An accurate and detailed description of these will show very distinctly how much they differ. These two species are the gossypinus and the cognatus. The first was described by me in the Proceedings of the Academy, vol. vi. p. 411, and is very easily distinguished from the other by its larger size. The second, which I was led by the assertion in the Quadrupeds of North America to consider as the Hesperomys leucopus, a more careful examination and comparison have shown to be entirely distinct. It appears in some degree allied to the H. gossypinus, but its manners are very different.

H. COGNATUS.

Hair dark plumbeous, above tipt with dusky and rufous-brown, with the latter more particularly on the sides, beneath with white, but in such a manner that the dark color of the lower portion of the hair shines through the white. Head large rather blunt, upper half of the cheeks inclining to rufous, ears large, open, naked except the lower part of the outer edge, feet flesh-color, tail slightly hairy, beneath whitish.

Length 3.4 in. Tail 2.2 in. Head 1.2. Fore leg 1.1. Hind leg 1.6.

This animal is easily distinguished from the H. leucopus by the under parts never being of the pure and snowy whiteness that gives so much beauty to the northern animal; they are however very nearly related. The relative difference of the fore and hind legs is not so great as to cause it to leap and not to run when endeavoring to escape pursuit. In size its dissimilarity to the H. gossypinus is most remarkable. This last also has the under side of the tail pale brown. The other likewise wants the narrow whitish border to the ears.

Inhabits Georgia and South Carolina; in the winter it frequents houses like its analogue in the north.

I have the pleasure to add to our daily increasing Fauna another species of this genus which I have received from Michigan. It likewise appears somewhat allied to H. leucopus but has very distinctive characters in its colors.

H. GRACILIS.

Hair dark slate-color above, a little tipped with brown, cheeks, line above the mouth, chin, throat and body beneath white, allowing the dark color of the lower part of the hair to shine through in such a manner as to cause these parts to appear grey. Outer side of fore legs brownish, thighs slate-colored both above and beneath, feet pale grey, nearly white. Head narrow, nose somewhat pointed, ears large, open, narrowly edged with whitish. Tail longer than the head and body.

Length 3.8 in. Tail 4 in. Head 1.2. Ears .6. Fore leg .1. Hind leg 1.5.

Inhabits Michigan; Prof. Baird.

We have in this genus three species which resemble each other. I have added below, short diagnostic marks by which they may be easily distinguished.

H. leucopus, supra læte badius, interdum prope aurantiacus, subtus niveus, coloribus a se abrupte disjunctis, pedibus posticis anticis plus duplo longioribus.

H. cognatus, supra nigro-fuscescente, et fusco variegatus, subtus albidus tanquam cinereo-mixtus, pedibus nontam imparibus.

H. gossypinus, supra fuscescente-badius, lateribus dilutioribus, subtus cinerascente-albidus. Corporis magnitudine valde a duobus precedentibus differt.

Notices of some Tape Worms.

By Joseph Leidy, M. D.

1. Taenia solium, Lin.

Hab. Occasional in the Anglo-American and in the Negro. I have one specimen with segments, 6 lines long by 2 lines wide, obtained by Prof. Agassiz, from an Indian of Lake Superior.

Note. Among all the tape-worms from man, which I have seen in this country—and I have taken the trouble to examine specimens in many localities, —I have never yet met with the *Dibothrium latum*, (*Bothriocephalus latus*).

2. Taenia laticephala, Leidy. Head large; acetabula opposite, very prominent, large, hemispherical; mouth slightly prominent, unarmed. Neck short. Anterior segments of the body short, oblong square; posteriorly square. Generative apertures marginal, alternate. Protruding penes, elongated conical. Length of one specimen 9 inches, greatest breadth ¾ of a line. Breadth of head ½ a line; of neck ¼ a line.

Hab. The small intestine of *Hystrix dorsata*.

3. Taenia serrata, Goeze. Head not broader than the neck, convex anteriorly; mouth prominent, furnished with a circle of strong hooks. Neck long. Anterior segments transversely oblong or cuneate; posteriorly square. Length of three specimens 9 to 12 inches; greatest breadth 1½ lines. Breadth of head ¼ of a line.

Hab. From the small intestine of an Esquimaux Dog, which was brought from the Arctic regions of North America, by the eminent navigator, Dr. E. K. Kane, U. S. N.

4. Taenia cucumerina, Bloch.

Hab. Common in the small intestines of all varieties of our Dogs.

5. Taenia elliptica, Batsch.

Hab. Common in the Domestic Cat.

6. Taenia crassicollis, Rudolphi.

Hab. Numerous specimens were obtained from the small intestine of a single Cat.

7. Taenia pusilla, Goeze.

Hab. Not uncommon in the introduced Norway Rat.

8. Taenia pectinata, Goeze.

Hab. Eight fragments from 1 to 4 inches long, with the greatest breadth 1½ lines, and having cuneate segments, short and broad, were obtained by Mr. Schafhirt from the small intestine of *Lepus sylvaticus*.

9. Taenia expansa, Rudolphi.

Hab. The anterior two feet of a specimen were obtained from the small intestine of an Ox.

10. Taenia bacillaris, Goeze?

Hab. Several fragments, each almost an inch in length and half a line in breadth, with short and broad cuneate segments, were obtained by Prof. Baird, from the intestines of *Scalops aquaticus*.

11. Taenia pestifera, Leidy. Head small, continuous with the neck; acetabula terminal and oblique, hardly prominent beyond the outline of the neck, hemispherical; mouth not prominent, unarmed. Neck long. Segments cuneate; those anterior short and broad, those posterior longer.

Hab. Three specimens from 1½ to 2 inches long, with the greatest breadth two-fifths of a line, were obtained from the small intestine of *Molothrus pecoris* by Prof. Baird; and one specimen 4½ inches long with the greatest breadth ½ of a line was procured from the small intestine of *Dolichonyx oryzivora* by Mr. Schafhirt.

12. TAENIA STRIGIS ACADIGÆ, Leidy.
Two specimens each about 1½ inches long, and apparently consisting of the whole body, except the head and neck, were obtained by Prof. Baird, from the small intestine of *Nyctala acadica*. The body is compressed cylindroid, with the anterior segments narrow, conical and those posteriorly moniliform. Breadth anteriorly ½ of a line; posteriorly ¼ of a line.

13. TAENIA VARIABILIS, Rudolphi?
A fragment 3 inches long and 1 line wide was procured by Prof. Baird, from the intestine of *Scolopax minor*. Segments short, broad, and subcampanulate, the infero-lateral borders being everted.

14. TAENIA DISPAR, Goeze.
Several specimens obtained by Prof. Agassiz, from the intestine of *Menobranchus maculatus*, without the head, are 3 inches long and ½ a line wide, and have longitudinally oblong segments, with lateral and alternate marginal generative apertures, and filiform penes. I further have obtained four specimens from *Rana pipiens*; and two about 6 inches in length, from *Bufo americanus*.

15. TAENIA LACTEA, Leidy. Head small, continuous with the neck, without rostellum; acetabula anterior, hemispherical, situated at the four angles. Neck moderately long. Segments anteriorly transversely oblong, posteriorly longer than the breadth, square with rounded angles. Generative apertures marginal (indistinct in the specimen).
Hab. One specimen 16 inches long and ½ of a line wide, was found in the intestine of *Tropidonotus sipedon*. In alcohol the specimen contracted to half the original length and widened to 1 line.

16. TAENIA GIBBOSA, Leidy. Head minute, discoid: acetabula horizontal, contiguous, circular; mouth not prominent, unarmed. Neck long, broad, and thick. Segmented portion of the body comparatively short; segments transversely oblong; the last one discoidal. Generative apertures not seen.
Hab. Two specimens, 1½ inches long, with the greatest breadth 1½ lines, were obtained by Dr. Le Conte, from the intestine of a species of *Lamna* inhabiting the Pacific coast of North America.

17. DIBOTHRIUM PUNCTATUM, Rudolphi. Head 1 to 1½ lines long; oblong; bothria marginal, linear. Neck none. Anterior segments cuneate or triangular; posterior ones quadrate; each with an appearance of three sub-divisions, with the sub-segments having a pair of generative apertures, in the course of a longitudinally depressed, dark colored line, passing the length of the body. Length 1 foot; greatest breadth 1½ lines.
Hab. Intestine of *Platessa plana*.

18. LIGULA MONOGRAMMA, Creplin.
A specimen, imperfectly developed, 6 inches long with the greatest breadth 6 lines, was obtained from the abdominal cavity of the *Morrhua americana*, by Mr. Schafhirt; and two specimens of almost the same length, with the greatest breadth 5 lines, were obtained from the abdominal cavity of *Leuciscus pulchellus*, by Prof. Baird.

An enumeration of Mosses detected in the Northern United States, which are not comprised in the manual of Asa Gray, M. D., some of which are new species.

By THOMAS P. JAMES, of Philadelphia.

ANDRÆA ROTHII Mohr, Fl. Crypt. Germ. t. 11. f. 7–8.
Hab. On rocks and the ground, White Mountains, New Hampshire.

ASTOMUM SUBULATUM Hampe, *Phascum subulatum*, Linn. Sp. Pl. p. 1570. Brid. 1. p. 37. Bryol: Europ. fasc 1. p. 15, tab. 7.
Hab. Old fields, Pennsylvania.

A. NERVOSUM Carl Müller, Syn. Musc. Frond. 1. p. 15. *Phascum nervosum*, Hook. Musc. exotic, vol. 2, tab. 105.
Hab. Dry sandy soil, New Jersey.

ACAULON TRIQUETRUM Bruch and Schimper, Bry. Europ. *Phascum triquetrum*. Spruce in London Journal, vol. 14, p. 189. *Ph. muticum*, Drum. Mus. Am. No. 8.
Hab. Bare grounds among the grass of old fields, Pennsylvania.

FISSIDENS TAXIFOLIUS Hedwig Sp. Musc. p. 155, t. 39. Brid. 2, p. 692. Bry. Europ. l. c. p. 9. t. 4.
Hab. Damp soils in woods, Pennsylvania and Delaware.

TETRAPLODON MNIOIDES Bry. Europ. l. c. p. 5. t. 2. *Splachnum mnioides*, Hdw. Mus. Frond. 2. p. 35, t. 11.
Hab. On decayed animal matter and horse manure, Mount Franklin, White Mountains, N. H.

TETRADONTIUM REPANDUM Schwæg. Bry. Europ. Fasc. 18. p. 4. t. 2. *Tetraphis repanda* Funk in Sturm, Fl. Germ. Crypt. P. 2. fasc. 17.
Hab. Damp shaded situations on the ground near "Glen House," Gorham, White Mountains, N. H.

CATHARINEA CRISPA n. sp. Dioica; caulis simplex longus erectus laxe foliosus; folia inferiora ovato-lanceolata, apicem versus majora, confertiora longa late-elongata, subundulata propre plana, emarginata, dentata, nervo subexcurrente, raro lamelloso, reticulata e cellulis laxis; perichætialia augustiora; siccitate involuto-crispa; seta rubra caulis longitudine; theca 1–3, brevis, cylindrico-ovalis curvata fusco-nigricans, operculo conico longe subulato recto.
Hab. Banks of small streams, New Jersey.

POLYTRICHUM BRACHYPHYLLUM Rich. in Michx. Fl. Amer. Bor. 2. p. 295. *Pogonatum brachyphyllum*, P. Beauv. Prodrom. p. 84. Brid. 2. p. 113.
Hab. Clayey banks near Woodbury, N. J.

BRYUM CRUDUM Schreb. Sp. Fl. Lip. p. 83. Bry. Europ. l. c. p. 37. t. 13. *Mnium crudum* Hedw. Mus. frond. 1. p. 99. t. 38.
Hab. On the ground shaded by shelving rocks, White Mountains, New Hampshire.

B. ELONGATUM Dicks. Fasc. 2. Pl. Crypt p. 8. Bry. Europ. l. c. p. 32.
Hab. In shaded situations, Crawford Notch, White Mountains, N. H.

DICRANUM FULVELLUM Smith, Fl. Brit. 3. p. 1209. Brid. 1. p. 613. *Arc ea fulvella*. Bry. Europ. Fasc. 33–36.
Hab. Moist situations, crevices of rocks, Mount Washington, White Mountains, N. H.

D. SPURIUM Hedw. Musc. Frond. 2. p. 32. t. 30. Bry. Europ. Fasc. 37–40. p. 41. t. 33. *D. condensatum*, Hedw. Sp. Musc. p. 139. t. 34.
Hab. On the ground in woods, New Jersey and Catskill, New York.

D. POLYCARPUM Ehrh. Dec. No. 84. Bry. Europ. Fasc. 37–40. p. 14. t. 2. *Oncophorus polycarpos*, Brid. 1. p. 397.
Hab. Moist situations, Mount Washington, N. H.

ENCALYPTA STREPTOCARPA Hed. Sp. Musc. p. 52. t. 10. Bridel 1. 144. Bry. Europ. 4. p. 15. t. 7.
Hab. On rocks, Lancaster county, Penn. Prof. Porter.

TRICHOSTOMUM RUBELLUM Rabenh. Deutch. Crypt. Bd. 2. p. 105. *Didymodon rubellus*, Bry. Europ. Fasc. 29–30. p. 3. t. 1. *Weissia recurvirostris*, Brid. 1. p. 317.
Hab. On the ground, Trenton Falls, New York.

T. CYLINDRICUM C. Müll. Syn. Musc. frond. 1. p. 586. *Didymodon cylindricus*, Bry. Europ. Fasc. 29–30. p. 5. t. 3. *D. tenuirostris*, Wilson in London Jour. Bot. 1841. p. 37.
Hab. In damp situations, Chester Co., Penn.

BARBULA PAPILLOSA Wilson, London Jour. Bot. 1845. p. 192.
Hab. Common on Elm trees, Massachusetts, Buttonwood trees, New Jersey and Delaware.

B. TORTUOSA Weber & Morh. Bot. Taschb. p. 205. Brid. 1. p. 574. Bry. Europ. 13–15. p. 26. t. 13. ex parte.
Hab. On the ground, open woods, near Falls of Niagara.

B. MURALIS Hedw. Sp. Mus. p. 123, Bry. Europ. 13–15. p. 35. t. 20.
Hab. In dry situations, Lancaster County, Penn. Prof. Porter.

ZYGODON LAPPONICUS Bry. Europ. 4. p. 6. *Gymnostomum lapponicum*, Hedw. Musc. Fr. 3. p. 12. t. 5.
Hab. In fissures under shaded rocks, Pennsylvania, Catskill, N. Y., and White Mountains, N. H.

Z. MOUGEOTII Bry. Europ. 4. p. 7.
Hab. Similar situations.

GRIMMIA DONNIANA var. OBTUSA Smith Fl. Brit. p. 196.
Hab. In wet situations, Mount Washington, White Mountains, N. H.

G. LEUCOPHÆA Grev. Trans. Wer. Soc. 4. t. 6. Bry. Europ. 25–28. p. 28. t. 29.
Hab. On rocks, Andover, Mass., Pine barrens, New Jersey.

G. ACICULARIS C. Müll. Syn. Mus. frond. 1. p. 804. *Racomitrium aciculare*, Brid. 1. p. 219. Bry. Europ. 25–28. p. 5. t. 1.
Hab. On rocks in rivulets, Catskill, N. Y., White Mountains, N. H.

G. CANESCENS C. Müll. Syn. Mus. fr. 1. p. 807. *Racomitrium canescens*, Brid. 1. p. 208. Bry. Europ. 25–28. p. 12. t. 7–8.
Hab. Wet rocks near Wissahickon, Philadelphia, Penn.

PTEROGONIUM FILIFORME Hedw. St. Cr. 4. t. 7. Engl. Bot. t. 2287. Hooker & Taylor, Musc. Brit. p. 75. t. 24.
Hab. White Mountains, N. H.

NECKERA COMPLANATA Hüb. Musc. Germ. p. 576. Bry. Europ. Fasc. 41–45. *Leskea Omalia complanata*, Brid. 2. p. 327.
Hab. Under surfaces of dry rocks, Catskill, N. Y., and White Mountains, N. H.

DICHELYMA FALCATUM Myrin. in Act. Reg. Acad. Sc. Holm. 1852. p. 274. t. 6. Bry. Europ. Fasc. 16. p. 6. t. 1.
Hab. Head waters of the Saco river, White Mountains, N. H.

FONTINALIS DALECARLICA Bry. Europ. Fasc. Sup. c. t. 1.
Hab. In rivulets, common, White Mountains, N. H.

HYPNUM TRICHOMANOIDES Schreb. Sp. Fl. Lips. p. 88. *Neckera trichomanoides*. Hartm. Sk. Fl. Ed. 5. p. 338. *Leskea Omalia trichomanoides*, Brid. 2. p. 329.
Hab. Under surfaces of dry rocks, Catskill, N. Y., and White Mountains, N. H.

H. DENTICULATUM Linn. Sp. Pl. p. 1588.
Hab. Dry situations near the Wissahickon, Philadelphia.

H. DEPRESSUM Bruch Ragensb. Bot. Zeit. 1824. *H. confertum* var. *depressum*, Brid. 2. p. 765.
Hab. On banks of the Schuylkill, Philadelphia.

H. ELEGANS Hooker Mus. Exotic. t. 9.
Hab. Near "Glen House," White Mountains, N. H.

H GRAMINICOLOR Brid. Sp. Mus. 2. p. 254. Drum. Mus. Am. No. 132.
Hab. Under dry rocks near Wissahickon, Philadelphia.

H. MUHLENBECKII Br. Sch. in litt. *H. Seligeri*, Sw. ex parte fide Schimper. *H. pulchellum*, Br. & Sch. in Drum. Musc. Am. and Jour. of Bot. 1843. 2. p. 668.
Hab. Near Wissahickon, Philadelphia, and White Mountains, N. H.

H. ——, n. sp. Cespites longissime fluitantes nigricanti-lutescentes et rufescentes, apice rubescentes et virentes expositi, nitidi; caulis decumbens, vage

ramosus; rami tenues flexuosi, ramulis tenuibus irregulariter depositis, apice arcuissime subpinnatis uncinatis; folia caulina dense imbricatula falcato-secunda, longe-lanceolata subulata e basi in acumen longum sensim attenuata planiuscula vel leviter undulata, margine integra, nervo crasso ante apicem evanido; foliis ramulosis subulatis longisetaceis falcatis, cellulis augustissimis linearibus, elongatis, pellucidis, lutescentibus, (Flor. et fruct. non visis.)

Hab. Submerged in "Ethan's pond," Willey Mountain, White Mountains, N. H.

H. FILIFERUM Schreb. Sp. Fl. Lips. p. 91.

Hab. On the banks of the Wissahickon, Philadelphia.

H. FLUVIATILE Swartz. Mus. Suec. p. 63. *H. Vallis Clausæ*, Bridel Sp. Muse. 2. p. 238.

Hab. Attached to rocks floating in brooks, Franklin County, Penn. Prof. Porter.

H. PALUSTRE Linn. Sp. pl. p. 1593. *H. luridum*, Sw. Mus. Suec. p. 58. Hedw. Muse. Fr. 4. p. 99. t. 38.

Hab. In rivulets, White Mountains.

H. OCHRACEUM Turner.

Hab. Wet situations, Pennsylvania, and White Mountains, N. H.

H. MONTANUM (Wils. Mss.) n. sp. Ab H. Halleri differt ramis elongatis erectis *foliis falcato-secundis*, minus acuminatis, areolatione densiore et opaciore.

Hab. On wet rocks in rivulets, White Mountains.

H. DIMORPHUM Brid. Sp. Muse. 2. p. 149.

Hab. On dry rocks in shaded wood, Ellis river, near "Glen House," White Mountains.

H. REFLEXUM Starcke in Web. & Mohr. Bot. Taschb. p. 306 and 476. Brid. 2. p. 461. Schwæg. Sup. 2. 1. p. 161 and 143. *H. tenax*, Drumm. Mss. Am. No. 225.

Hab. In woods on the ground, Massachusetts.

H. SUBTENUE n. s., dioicum; cespites latissime prostrati, dense intermixti firmi, lurido-virentissimi; caulis longe repens, tenuissimus filiformis rigidus radicans vage ramosus et pinnatus; ramis breviusculis flexuosis simplicibus et pinnatis longioribus iterum subpinnate ramulosis attenuatis; folia caulina laxe imbricata, ovato-deltoidea brevi-acuminata acumine subobliquo cavisscula serrulata, nervo crasso viridi ante apicem evanescente, cellulis laxiusculis pellucidis viridis: ramea ovata sublonge acuminata; perichætialia oblonge vaginantia erecta et squarrosa longe attenuata vel abrupte acuminata, apice summo subdenticulata, nervosa; seta flexuosa tuberculata rufa; theca ovato-globosa cernua et horizontalis subnigra, operculo conico breviter acuminato.

Hab. On rocks and trees near the base, Gorham, White Mountains, N. H.

H. ABIETINUM Linn. Sp. Pl. p. 1591. Hedw. Muse. Fr. 4. p. 81. t. 32.

Hab. Catskill Mountains, N. Y., and White Mountains, N. H.

H. SQUARROSUM Linn. Sp. Pl. p. 1593.

Hab. Woods, White Mountains, N. H.

Mr. Vaux, on behalf of a Committee appointed in 1852, to collect funds for enlarging and improving the Hall, read the following Report:—

The Committee, as constituted by the Academy, September 28, 1852, to solicit subscriptions for the purpose of enlarging and altering the Hall, beg leave to present the following Report:—

The amount originally estimated as requisite for the contemplated improvements was $6,500, which the Committee were soon enabled to announce to the Society had been obtained. But before a contract had been closed for the work, a great advance took place in the price of labor and materials. Other important alterations and additions also were proposed. A new estimate was then

made, greatly exceeding the first. The Committee continued their labors, and they have now the pleasure to state in this, their final report, that their efforts were crowned with success, and that the whole amount required for carrying out the plan of the Building Committee, including the alterations referred to, and others also which became necessary during the progress of the work, has been subscribed, collected and paid over to the Treasurer.

The following are the names of the contributors, and the sums subscribed by each :—

Thomas B. Wilson,	$3,693	Robert Bridges,	50
Isaac Lea,	650	John Cooke,	50
J. Price Wetherill,	500	John Lambert,	50
William S. Wilson,	500	Thomas C. Percival,	50
A Subscriber,	500	William Camac,	50
James Dundas,	250	Charles Lennig,	50
George W. Carpenter,	250	Francis N. Buck,	50
Richard Wister,	250	Joseph Lea,	50
Edward Harris,	200	G. D. Rosengarten,	50
Joseph D. Brown,	150	A Subscriber,	50
George B. Wood,	150	Tobias Wagner,	50
Robert Pearsall,	100	G. W. Fahnestock,	50
Augustus E. Jessup,	100	John Jordan, Jr.,	50
Thomas D. Mütter,	100	John S. Phillips,	50
Charles D. Meigs,	100	John C. Cresson,	50
John K. Mitchell,	100	W. P. Hinds,	50
George Ord,	100	Robt. A. Caldcleugh,	50
Charles F. Beck,	100	J. Engle Negus,	50
Alex. W. Johnston,	100	J. V. Williamson,	50
E. J. Lewis,	100	Jos. S. Lovering,	50
John Grigg,	100	Frederick Graff,	50
William R. Lejee,	100	Joseph Leidy,	25
George A. McCall,	100	Thomas Fisher,	25
M. D. Lewis,	100	Chas. M. Wetherill,	25
Jacob G. Morris,	100	Francis W. Lewis,	25
Joseph Pancoast,	100	Joseph P. Smith,	25
John Le Conte,	100	Mifflin Wistar,	25
C. W. Pennock,	100	Samuel Ashmead,	25
Chas. Henry Fisher,	100	Jacob Gilliams,	25
Thomas T. Lea,	100	Paul B. Goddard,	25
Nathan Smedley,	100	Aubrey H. Smith,	25
J. Francis Fisher,	100	John B. Myers,	25
Robt. E. Peterson,	100	Isaac R. Davis,	25
Richard D. Wood,	100	Elias Durand,	25
Henry Seybert,	100	John S. Haines,	25
Caleb Jones,	100	Henry J. Boller,	25
John Bohlen,	100	Charles C. Cresson,	25
William Ashbridge,	100	Charles N. Bancker,	25
Wm. A. Blanchard,	100	Mrs. M. E. Ross,	25
A. Hart,	100	J. B. Lippincott,	25
Cornelius & Baker,	100	H. N. Burroughs,	25
Joseph Jeanes,	100	Edward Lowber,	25
William Bucknell,	100	John Farnum,	25
William S. Vaux,	100	Caleb Cope,	25
A. L. Heermann,	100		
Edgar L. Thomson,	100	Total	$12,218

Respectfully submitted by,

WM. S. ZANTZINGER,
WM. S. VAUX,
ROBERT BRIDGES,
GEO. W. CARPENTER,
} *Committee.*

Hall of the Acad. Nat. Sciences, December 25, 1855.

Mr. Vaux, on behalf of the Committee appointed January 25th, 1853, to superintend the enlargement of the Hall of the Academy, presented a final report, exhibiting the cost of the improvement, and its satisfactory completion.

The original estimated cost of the work, $6.500, was increased to $10,500, in consequence of an extension of the plan, and a great advance in the price of labor and materials. During the progress of the work, other alterations and additions, which could not be foreseen or provided for beforehand, were also determined on, at a cost of $1,763 above the contract, making the whole expense $12,268, all which had been received. A final settlement had been made with the contractor during the present month.

The Librarian read the following REPORT :—

REPORT OF THE LIBRARIAN FOR 1855.

Since the last Annual Meeting, in December, 1854, the additions to the Library consist of 233 volumes, 561 periodicals and serials, 70 pamphlets, and 9 maps, on the following subjects :

	Vols.	Period. and Serials.	Pamph.
Natural Sciences, - - - - -	85	73	27
Anatomy and Physiology, - - -	29	8	4
Journals, Trans., Memoirs, and Proceed. of Societies and Cyclopædias, - - -	65	480	
Physical Science and Chemistry, - - -	8		21
Voyages and Travels, - - - -	11		
History and Biography, - - - -	4		3
Antiquities and the Fine Arts, - - -	14		
Miscellaneous, - - - - -	17		8
Maps, 9			
	233	561	63

Making a total of 857 additions for 1855.

These have been derived from the following sources ; Authors 63 ; Editors 35 ; Societies, Corporations and Governments 313 ; Members and Correspondents 46 ; Dr. Wilson 410.

The inconveniences arising from insufficient accommodations for the books, which have been alluded to in previous reports, happily no longer exist. The collections which formerly occupied the room on the right of the George street entrance, have been removed to more appropriate places provided for them in the upper Hall, and this fine apartment has been tastefully fitted up during the past summer, and now forms part of the Library. It communicates directly with the adjoining rooms, comprises an area of about 1400 square feet, has a gallery extending round it, and is furnished with cases which occupy the walls, and which, it is estimated, will accommodate about 10,000 volumes.

There are now three distinct apartments occupied as a Library, all on the basement floor, well lighted, and comprising together an area of upwards of 2400 square feet. A new arrangement of the Books has been made, which, it is hoped, will afford increased facilities to those consulting them. The accommodations for them are now ample for any ordinary increase for many years.

A favorable opportunity has been afforded by this re-arrangement, for making another enumeration of volumes possessed by the Society. These have been found to number at this date over 15,000, distributed as follows :

	Volumes.
Natural Sciences,	4767
Anatomy and Physiology,	605
Journals, Trans., Mem., &c.,	2973
Dictionaries of Arts and Sciences,	570
Voyages and Travels,	1936
Antiquities and the Fine Arts,	447
Historical Documents (estimated),	1900
Chemistry and Physical Science,	435
History and Geography,	593
Miscellaneous,	1650
Maps in volumes,	30
	15006

There is also a very large collection of tracts, periodicals, serials, &c., which, when bound into volumes, will doubtless swell the aggregate to 15500. The first enumeration was made in December 1850. At that date the number in the Library was 11,557, exclusive of 500 estimated volumes of tracts, &c. The increase therefore in five years, has been about 3500, or an average annual increase of nearly 700 volumes. By comparing the corresponding items in the two statements for 1850 and 1855, it will be found that a very large proportion of the whole increase is made up of works in the various departments of Natural Science, in Anatomy and Physiology, and in the Journals or Periodicals, viz., 1554 volumes on the Natural Sciences, 319 on Anatomy and Physiology, and 1029 Journals, or a total increase of upwards of 2900 volumes in these three most valued and most frequently consulted departments of the Library.

In conclusion, we may add, that during the present year, as in many others, the Library owes all that it has received to the relations the Academy has formed with other scientific bodies, or to the generosity and liberality of its friends and supporters.

Respectfully submitted by

WM. S. ZANTZINGER, Librarian.

December 25, 1855.

The Report of the Treasurer for 1855 was read and referred to the Auditors.

Dr. Leidy read the following Report:—

REPORT OF THE CURATORS FOR 1855.

Since the last annual Report of the Curators was presented to the Academy, the alterations and enlargement of the building, commenced in 1853, have been completed. The character of the alterations it is unnecessary to give in this place, as it is done in an especial report of the committee, which was appointed to superintend the changes, and it is proposed here, merely to give a general view of the present arrangement of the museum, now contained in two saloons; the one above the other.

The upper saloon of the museum is 110 feet long, 35 feet wide, and 34 feet high; and it has three ranges of galleries extending completely round. Two stairways communicate with this saloon, one on each side of the back or western third, and they ascend in the same position to the upper gallery. On the floor the side cases are brought out upon a line with the edge of the first gallery, leaving behind the cases, in advance and back of the stairways, four rooms, of which the two longer are appropriated to the entomological and oological cabinets, and the herbarium, and the others are appropriated to the services of the conchological and mineralogical committees.

All the upright or wall cases of the upper museum saloon, with the exception of four at the east end of the first gallery, numbering 169, are appropriated to the ornithological collection, now in process of arrangement by Dr. Wilson.

The middle of the floor is occupied with 48 large, horizontal cases, arranged

in twelve double rows, and accommodating the conchological collection, now under arrangement.

The edge of the first and second galleries supports 62 horizontal cases, which with four upright ones at the east end of the first gallery, contain the collection of minerals, newly arranged by Messrs. Vaux and Ashmead.

The edge of the third gallery supports 27 horizontal cases, containing crustacea, and 13 cases of the same kind, containing echinodermata.

The lower museum saloon is of the same length and breadth as the upper one, but is 11 feet less in height; and it has two galleries extending entirely round, except at the east end of the first range. A stair case for the admission of the public, communicates with the hall in the south east corner, and in the same position ascends to the second gallery. At the back third of the same gallery, a stairway communicates with the saloon above; and on the opposite side a stairway ascends from the floor to the hall above, and communicates with the library rooms below.

The north-east corner of the lower museum saloon, on the floor and at the termination of the first gallery, is occupied by two small rooms, appropriated to the service of the mammalogical and herpetological committees.

At the back third of the saloon, on the third floor, the side wall cases are brought out on a line with the edge of the gallery, leaving behind the cases two small rooms, appropriated to the use of the committees on palæontology and ornithology.

In advance of the two rooms just mentioned, large glass cases extend nearly two-thirds the length of the saloon, for the accommodation of the larger mammalia and skeletons. The floor in the interspace of these cases, is occupied by three longitudinal double rows of partly horizontal and upright cases, 66 in number, appropriated to the collection of extinct invertebrata, and of geological specimens of rocks, yet unarranged.

In the east end of the saloon, there is one large, horizontal, transverse case, and three upright wall cases, containing large specimens of extinct vertebrate remains, the bulk of which collection, however, is now contained in three transverse double rows, of partly horizontal and upright cases, 18 in number, and in four wall cases to the north side of the latter, in the back third of the saloon. The four upright cases opposite to those just indicated, together with four others in the west end are appropriated to skeletons.

The wall cases on the northern side of the first gallery, 19 in number, accommodate the collection of reptiles, and the corresponding cases on the opposite side, 20 in number, contain the collection of human crania.

The edge of the first gallery supports 44 horizontal cases, containing the collection of extinct vegetable remains, arranged by Mr. W. F. Rogers.

In the upper gallery, in advance of the stairways, there are 30 wall cases and 12 long foot cases at the edge of the galleries, appropriated to the mammalogical collection; and back of the stairways there are 14 wall cases and 6 foot cases, to be appropriated to the collection of fishes.

On the two galleries at the west end, there are 8 vertical cases, and three others at the side of the first landing of the stairway, in the south east corner, to be used for the collection of sponges and corals.

The furnishing of the upper museum saloon and committee rooms, important alterations in the lower museum saloon, and the construction of new cases in the front basement room of the building, now appropriated to the use of the library, have been effected without cost to the Academy; the expense, amounting to $10,850, having been defrayed by our liberal fellow member, Dr. T. B. Wilson. In the alterations the old material was used wherever it could be done with advantage, so that they appear to be of greater magnitude than the expense would allow.

During the year just about closing, the donations to the different departments of the museum and the labors therein have been as follows:—

Mammals.—Of these animals there were presented 26 specimens of 18 species, among which were a reindeer from Greenland, presented by Col. G. A. McCall;

a second specimen of the same animal and two species of Phoca, presented by Dr. Wilson; and a third species of Phoca presented by Mr. Vaux.

Birds.—Mr. Guex presented 190 bird skins from Italy; and 24 specimens were presented by J. D. Sergeant, Dr. Heermann, Mr. Krider and others.

The oological collection has been removed from the position it formerly occupied, and has been rearranged by Dr. Heermann, in cabinets of drawers, constructed for the purpose, and now located together with the entomological collection in the north east room of the upper museum hall.

Reptiles.—Of these animals, several hundred specimens of about 40 species, have been presented by various members and others.

The collection of reptiles of the Academy, has recently been arranged by Dr. Hallowell, who has devoted much time to its study.

Fishes.—Drs. Ruschenberger and Turner, U. S. N., have presented 37 specimens of 26 species of fishes, from South America; Mr. Ashmead has presented 40 specimens of 24 species, from our coast; and Dr. Burtt, U. S. N., has presented a small collection from Madeira. Besides these, 28 specimens of 21 species have been presented by various members, and 41 specimens of 22 species have been received in exchange.

Mollusks.—Dr. Burtt, U. S. N., has contributed to the collection of the Academy 98 specimens of 34 species of shells, from various parts of the world; F. A. Sauvalle, Esq., has presented 50 specimens of 16 genera of terrestrial and fluviatile shells of Cuba; and various members have presented numerous specimens of 38 species, besides several small collections, in which the specimens were not enumerated.

Insects.—Mr. Guex has enriched our entomological collection by a contribution of 2300 specimens of about 1800 species of coleoptera from Italy, Russia, Siberia, Caucasus, Sitka, East Indies, and Australia. Mr. Andrew Murray of Edinboro presented 50 specimens of African coleoptera; and several members have contributed others in the various orders.

Crustaceans, arachnides, myriapods, annelides and zoophytes.—Of crustacea 34 species have been presented, chiefly by Mr. Ashmead. Of arachnides 3 have been presented; of myriapods 6; of annelides 20, among which is one of Eunice gigantea, from India, presented by Mr. Guillou; of echinoderms 12; of corals 4, among which is a fine specimen of Dendrophyllea ramea presented by Dr., Burtt, U. S. N., and one of the curious Hyalonema sieboldi, or glass-coral of Japan, presented by Capt. H. A. Adams, U. S. N.; and of sponges 4 species.

The collection of crustacea has been recently arranged to a considerable extent, by Dr. Bridges.

Comparative Anatomy. Of skulls of different animals 27 have been presented, of which 18 are from Dr. Heermann, and among the others is an ancient Mexican skull, presented by Dr. E. H. Barton of New Orleans, and the skull of a Japanese, presented by Dr. Liner, U. S. N. Of skeletons 4 small ones were presented, and of miscellaneous specimens 12.

The collection of human crania, now numbering 1006, has lately been completely arranged, classified, and catalogued by Dr. J. A. Meigs.

Botany. A collection of plants from Japan, consisting of several hundred specimens, was presented by Dr. Jos. Wilson, U. S. N.; a collection of ferns from Africa by Dr. Burtt; and a collection of 29 species marine algæ by Mr. Ashmead. There were also 24 other specimens, generally consisting of seeds and fruits presented by different members and others.

The herbarium of phanerogamous plants is now undergoing careful re-arrangement by Mr. E. Durand; and several of the members intend shortly to re-arrange the collection of cryptogamia.

Palæontology. A collection of fossils, consisting of 656 specimens of 280 species, from the coal measures, carboniferous limestone, devonian and silurian series of Great Britain and Ireland, was presented by Dr. T. B. Wilson; Prof. B. L. C. Wailes presented 38 species of shells and corals from the tertiary beds of Mississippi, being the original specimens described by Mr. Conrad; and small collections from different systems were presented by Dr. W. H. Hammond, U.

S. A.; Mr. Moore of Texas; J. Sampson of Indiana; and Dr. R. W. Gibbes of South Carolina. Nearly 200 specimens of fossils were presented from various localities, by different members and others. Among them is a fragment of wood weighing over 100 pounds from the drift of New Jersey, presented by Dr. Camac.

Mineralogy. Chas. M. Wheatley, Esq. presented 41 fine specimens of minerals, principally from Chester Co.: Dr. T. B. Wilson presented 218 specimens of European rocks; and Mr. W. S. Wilson presented a tablet containing 60 polished specimens of marbles of the Pyrenees. Besides the foregoing, 71 specimens of minerals were presented by various members and other persons.

The Museum of the Academy was re-opened to the public on the 1st of June, as usual on Tuesday and Friday afternoons, from one o'clock until sundown; and since its re-opening the number of visitors has exceeded 7000, or an average of over 1000 a month.

In concluding this report, the Curators would respectfully direct the attention of the Academy to the want of a greater number of efficient persons in various committees to aid in the arrangement of many of its departments, which now lie totally neglected.

JOSEPH LEIDY,
Chairman of the Curators.

On leave granted, Dr. Zantzinger presented for publication in the Proceedings the following paper, "An enumeration of Mosses detected in the Northern United States, which are not comprised in Gray's Manual, some of which are new species. By Thomas P. James, of Philadelphia." Referred to Dr. Zantzinger, Dr. Bridges and Mr. Durand.

The Society then proceeded to an election for officers for the ensuing year: with the following result:—

President,	GEORGE ORD.
Vice Presidents,	Robert Bridges, Isaac Lea.
Corresponding Secretary,	John L. Le Conte.
Recording Secretary	B. Howard Rand.
Librarian,	Wm. S. Zantzinger.
Treasurer,	George W. Carpenter,
Curators,	Joseph Leidy, William S. Vaux, Samuel Ashmead, John Cassin.
Auditors,	Robert Pearsall, Samuel Ashmead, William S. Vaux.
Publication Committee,	William S. Vaux, Robert Bridges, Isaac Lea, H. Cooper Hanson, Joseph Leidy.

ELECTION OF CORRESPONDENTS.

wing were elected *Correspondents* of the Academy :—
. Steiner, M. D., of Baltimore.
. Suckley, U. S. A.

A voyage of discovery to the North Pacific Ocean and round the world, in 1790–95, in the Discovery sloop of war, and the Tender Chatham, under the command of Capt. George Vancouver. New edition, 6 vols. 8vo. 1801. From Mr. A. G. E. Agnew.

Two folio volumes, containing numerous specimens of the works of the late eminent engraver, Alexander Lawson, with some original drawings by Alexander Wilson and others. From Miss Lawson, through Prof. S. S. Haldeman.

Dr. Wilson presented the following on the usual condition :—

Annals and Magazine of Natural History, for July, August and September, 1855.

London, Edinburgh and Dublin Philosophical Magazine, July, August and September, 1855, and supplement No. of do.

Quarterly Journal of Microscopical Science, No. 12, July, 1855.

Cyclopædia of Anatomy and Physiology, parts 46 and 47.

Conchologia iconica. By Lovell Reeve, parts 144, 145, 146, 147

London Athenæum, for August, 1855.

Proceedings of the Zoological Society of London. Text and plates for 1850-'51 and '52.

Comptes Rendus. Tome 41. Nos. 1—6.

Schreber "die Säugthiere." Fortgesetzt von Wagner. Supplementband, 3 Abth. 12, 13 Lief.

Annales des Sciences Naturelles. 4me serie. Tome 3, No. 3.

Revue et Magasin de Zoologie. 1855, Nos. 6, 7.

Histoire naturelle des Mollusques terrestres et fluviatiles de France. Par A. Moquin-Tandon. Liv. 3.

Memoires de la Société des Sciences de Bordeaux. Tome 1, No. 2, January, 1855.

Description des Animaux fossiles du Terrain carbonifére de Belgique. Supplement. 4to.

Iconum Botanicarum index locupletissimus. By Geo. Aug. Pritzel, Ph. D. Imperial 8vo.

Geographie Botanique Raisonnée. Par M. Alph. De Candolle. 2 vols. 8vo.

Geodephaga Britannica A monograph of the carnivorous Ground-beetles indigenous to the British Isles. By J. F. Dawson. 8vo.

Siluria. The History of the oldest known rocks containing organic remains. By Sir Roderick Impey Murchison. 8vo.

October 9th.

Giornale dell' I. R. Istituto Lombardo di Scienze, Lettere ed Arti e Biblioteca Italiana. Nuova serie. Fascic. 1—30. From the Institute.

Memoire della Reale Accademia delle Scienze di Torino. Serie 2da. Tome 14, 4to. From the Academy.

Recueil des Actes de l'Académie Impériale des Sciences, Belles-Lettres et Arts de Bordeaux. 1854, 2e et 3me trimestre. From the Academy.

Memoires de la Société Impériale des Sciences Naturelles de Cherbourg. Tome 2, 1854. From the Society.

Proceedings of the American Association for the advancement of Science. 6th Meeting, May, 1854. From the Association.

Proceedings of the California Academy of Natural Sciences. Vol. 1. pp. 47–66. From the Academy.

Transactions of the Royal Society of Edinburgh. Vol. 21, part 1. 4to. From the Society.

The following were presented by Dr. Wilson on the usual condition :—

Jahrbuch fur Mineralogie, Geognosie, &c. Herausg. von Dr. K. C. v. Leonhard und Dr. H. G. Bronn. 22 vols. 8vo. 1831–1851.

Six Ethnographical Maps. By J. C. Prichard, M. D., to accompany his works on the Natural History of Man. Folio.

The Ethnographical Library, conducted by Edwin Norris. Vol. 2. Native Races of the Russian Empire. By R. G. Latham, M. D. 8vo.

Manual of Geology, practical and theoretical. By John Phillips. 8vo.

Lectures on the comparative Anatomy and Physiology of the Invertebrate Animals. By Richard Owen. 2d edition, 8vo.

The Ferns of Great Britain: illustrated by J. E. Sowerby; the descriptions &c., by Charles Johnson. 8vo.

Lippincott's Pronouncing Gazeteer, or Geographical Dictionary of the world. 2 vols. imperial 8vo.

A Manual of Marine Zoology of the British Isles. By P. H. Gosse. Part I. 12mo.

Etude de l'appareil reproducteur dans les cinq classes d'animaux vertébrés. Par G. J. Martin St. Ange. 4to.

October 16th.

Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, 1853–4. From the Academy.

Kongl. Vetenskaps-Akademiens Handlingar, 1852, 1853. From the same

Oversigt over det Kgl. danske Videnskabernes Selskabs Forlandlingar og dets Medlemmers Arbeider i Aaret, 1854. From the Society.

Natuurkundig Tijdschrift voor Nederlandsch Indie. Uitgegeven door de Natuurkundige Vereeniging in Nederlandsch Indie. Nieuwe serie. Deel 1. Af. 1—6, Deel 2, Af. 1—4. From the Association.

Giornale dell' I. R. Istituto Lombardo di Scienze, &c.; nuova serie, fascic. 31—36. 4to. From the Institute.

Resumen de las Actas de la Academia Real de Ciencias de Madrid de 1850 a 1851. From the Academy.

Würtembergische naturwissenschaftliche Jahreshefte. 1854, No. 2. From the Wurtemberg Nat. History Association.

Recueil des Actes de l'Academie Imperiale des Sciences, &c., de Bordeaux. 1854, 3me trimestre. From the Academy.

Journal of the Society of Arts, (London,) Nos. 119—136. From the Society.

Proceedings of the Boston Society of Natural History, vol. 5, pp. 209—224. From the Society.

Virginia Medical and Surgical Journal, for October, 1855. From the Editors.

Syndesmologia sive historia ligamentorum humani corporis. Auctore Josias Weitbrecht D. M. 4to. From Mr. Cassin.

October 23d.

Archives du Museum d'Histoire Naturelle. Vol. 4. liv. 4; vols. 5, 6, 7, 8, livs. 1, 2. From the Museum.

The following were presented by Dr. Wilson on the usual condition:—

Natural History of Man. By J. C. Prichard, M. D. 4th edition, by Edwin Norris. 2 vols. 8vo.

Suites á Buffon. Histoire nat. des Reptiles. Par MM. Dumeril et Bibron. Vols. 7, 9. 8vo.

Anatomie und Physiologie der Pflanzen. Von Dr. F. Unger. 8vo.

London Athenæum for September, 1855.

Journal of the Franklin Institute for October, 1855.

DONATIONS TO MUSEUM

In November and December, 1855.

November 6th.

Three Gar fishes; one glass snake, from Georgia.

Fossil Ostrea, from Georgia, four fossils (Cretaceous), from Alabama. Presented by Jos. Jones, Esq.

One Squilla; one scorpion; four Coleoptera; one Lepidoptera; five Orthoptera, one hemiptera, from Trinidad. Presented by Dr. Samuel Lewis.

Trigonocephalus contortrix. From J. C. Hughes, Pottsville.

Ten specimens coal plants, Carbondale, Pa. Presented by Henry Drinker, Esq., of Montrose, through Mr. Vaux.

Numerous nodules of carbonate of iron, with a species of Goniatite as a nucleus, and one specimen of calcareous earth, from Salt Sulphur Springs, Virginia. Presented by N. Harrison, Esq., through Mr. J. Lambert.

Five species shells, from Simoda; collection of plants, from Japan; four birds' heads, from Loochoo; one Medusa. Presented by Dr. Jos. Wilson, U. S. N.

Fruit of Cyamus, from Kansas. From Dr. Carson.

Over 1,500 specimens of Coleoptera, from various parts of Italy, many of which are new to the collection of the Academy; 190 bird skins from ditto. Presented by Mr. Guex.

Two bottles of Mexican Coleoptera. Presented by the Smithsonian Institute, through Dr. Le Conte.

November 13th.

Fifty-seven specimens of two species serpents; thirty specimens of four species frogs; three specimens Emys Muhlenbergii. From the vicinity of Philadelphia. Presented by Drs. Hallowell and Leidy.

Two crystals of Mica. Presented by Jacob Peirce.

One Echinus, from Valparaiso. Presented by Dr. Ruschenberger.

Six specimens of four species Turtles, from Georgia. Presented by Jos. Jones, Esq.

November 20th.

Bernicla Hutchinsii, three specimens; Anser albifrons, adult and young. Presented by J. D. Sergeant, Esq.

Two specimens of Mus rattus, from Brooklyn, L. I. From Mr. John Ashhurst.

Tubular sand-stone, (ferruginous) from Cumberland Co., N. J. Presented by Mr. F. B. Gillette.

December 4th.

A collection of Coleoptera, comprising eight hundred specimens of six hundred and fifty species, from Russia, Siberia, Caucasus, Sitka, East Indies, and Australia. Presented by Mr. Guex.

Lygosoma lateralis, Crotalus miliarius, (remarkable for the number of its rattles), Simotes coeneus, Rana clamator, and a Salamandra. From Georgia. Presented by Maj. Le Conte.

Coluber punctatus; a Salamandra; two small fishes from Lake Superior; and Herpetodryas æstivus, from New Jersey. Presented by Dr. Coleman.

Numerous specimens of Tropidonotus sipedon, Rana palustris, R. halecina, Rana ———, n. s., Astacus Bartoni, (unusually large), Tropidonotus ordinatus, a Sorex, and several fishes. From the vicinity of Philadelphia. Presented by Drs. Hallowell and Leidy.

December 18th.

Fossils from the Coal Measures, carboniferous Limestone, Devonian and Silurian Systems of Great Britain and Ireland of the following genera: Calamites, Lepidodendron, Manon, Aulopora, Catenipora, Cyathophyllum, Cystiphyllum, Favosites, Graptolithus, Lithodendron, Columnaria, Millepora, Turbinolia, Turbinolopsis, Porites, Retepora, Strombodes, Syringopora, Verticillipora, Actinocrinus, Cyathocrinus, Platycrinus, Poteriocrinus, Rhodocrinus, Serpulites, Asaphus, Calymene, Agnostus, Pachyodon, Cypricardia, Modiola, Sanguinolaria, Avicula, Atrypa, Calceola, Leptæna, Orbicula, Orthis, Pentamerus, Productus, Spirifer, Terebratula, Lingula, Euomphalus, Nerita, Buccinum, Pleurotomaria, Rotella, Terebra, Turbo, Turritella, Bellerophon, Cyrtoceras,

Lituites, Orthoceras, Phragmoceras, comprising about one hundred and seventy-five species and three hundred and seventy-five specimens. Presented by Dr. T. B. Wilson.

One hundred and ninety-four specimens of European Rocks from the following formations: Post-Pliocene, Miocene, Eocene, Cretaceous, Oolite, Lias, New Red Sandstone, Permian, Carboniferous, Old Red Sandstone, Silurian, Primitive, and twenty-nine specimens of Porphyritic, Basaltic and Volcanic Rocks of Europe. Presented by the same.

One specimen of Black Band Iron Ore, from Wales. Presented by the same.

Albino meadow lark. Presented by Wm. B. Flenaders.

Three specimens Devonian fossils, from Huntingdon Co. Pa. From Mr. S. Powel.

Three specimens Silurian fossils, from Indiana. Presented by Mr. Hill.

Lepidodendron, from Mahonoy Mountain, Penn. Presented by Wm. Parker Foulke, Esq.

DONATIONS TO LIBRARY

For November and December, 1855.

November 6th.

Description of a portion of the lower jaw of the Mastodon Andium. By Jeffries Wyman, M. D. From the Author.

Proceedings of the Royal Society of Edinburgh, session 1854–5. From the Society.

New York Medical Times, for October and November 1855. From the Editor.

An inquiry into the Pathological Anatomy of acute Pneumonia. By J. Da Costa, M. D. From the Author.

Our Country's Mission in History. By Wm. H. Allen, LL. D. From the Author.

The following works were presented by Dr. Joseph Leidy:

Splanchnologie, ou l'Anatomie des Visceres. Par René Croissant de Garengeot. 2e edition. 2 vols. 12mo.

Miotomie humaine et canine. Par René Cr. de Garengeot. 3me ed. 2 vols. 12mo.

Memoires sur la nature sensible et irritable des parties du corps animal. Par M. Albert de Haller. 2 vols. 12mo.

Anatomie chirurgicale, ou description exacte des parties du corps humain. Par M. J. Palfin; nouv. ed. par A. Petit. 2 vols. 8vo.

D. J. Frid. Blumenbachii Institutiones physiologicæ. 8vo.

Alberti Halleri Opuscula pathologica. 8vo.

Elements of Anatomy. By Jones Quain, M. D. 4th edition. 8vo.

Bibliotheca Boerhaaviana. 8vo.

De singulari tunicarum utriusque oculi expansione. Autore P. C. Bergmanno M. D. 4to.

J. Baptistæ Morgagni Epistolæ Anatomicæ duæ. 4to.

The History of the Absorbent System. By John Latham. 4to.

De Venis lymphaticis valvulosis. Auctore Alexandro Monro. 12mo.

Observations on the Structure and Functions of the Nervous System. By Alexander Monro. Folio.

November 13.

Dr. Wilson presented the following, on the usual condition:—

Palæontographical Society's Publications. 1853 and 1855. 2 vols. 4to.

British Palæozoic Fossils. By the Rev. Adam Sedgwick and Frederick McCoy. Part 2, Palæontology. 4to.

Novitates Conchologicæ. Par Louis Pfeiffer, Dr. No. 2. 4to.

Flora Saræpontana fossilis. Von Fr. Goldenberg. Heft 1. Folio.

Comptes Rendus. Tome 41. Nos. 9, 10, 11, 12, 13.

London, Edinburgh and Dublin Philosophical Magazine for October, 1855.

Revue et Magasin de Zoologie. 1855. No 8.

Annals and Magazine of Natural History for October, 1855.

Annales des Sciences Naturelles, 4me serie, tome 3, No. 4.

Geschichte der Botanik. Von Ernst H. F. Meyer. 2 vols. 8vo.

General Outline of the Organisation of the Animal Kingdom. By T. Rymer Jones. 2d edition. 8vo.

Analytical Ethnology: the mixed tribes in Great Britain and Ireland examined. By Richard Tuthill Massy, M. D. 8vo.

Phyceæ Extraeuropææ exsiccatæ quas distribuit G. E. Areschong. 2 fascic. Folio.

November 20th.

Fungi Caroliniani exsiccati. By H. W. Ravenel; fascic. 4. 4to. From the author.

American Journal of Science and Arts for Nov., 1855. From the Editors.

Origin and operations of the U. S. Astronomical Expedition. By Lieut. J. M. Gilliss, U. S. N. From the Author.

Proceedings of the Boston Society of Natural History. Vol. 5. pp. 225—240. From the Society.

Magnetische Ortsbestimmungen an verscheedenen Puncten des Königreich Bayern &c. 1 thiel. Von Dr. Lamont. 8vo. From the Bavarian Government, through C. F. Hagedorn, Esq.

Magnetische Karten von Deutschland und Bayern. Von Dr. J. Lamont. Folio. From the same.

Die Vegetations-Verhältnisse Südbayerns. Von Otto Sendtner. 8vo. From the same.

Die Theorie des Equatoreals. Von P. A. Hansen. From the Royal Saxon Society of Sciences, Leipzig.

Die Theorie der Kreisverwandtschaft in Rein Geometrischer Darstellung von A. F. Möbius. From the same.

Ueber die Rationalität der Tangenten Verhältnisse Tautozonaler Krystallflächen. Von C. T. Naumann. From the same.

Berichte über die Verhandlungen der k. Sächsischen Gesellschaft der Wissen. zu Leipzig. Math. Phys. Classe, 1853, No. 3; 1854, Nos. 1, 2. From the same.

Recueil des Actes de l'Academie Impériale des Sciences, &c. de Bordeaux. 1854, 4me trimestre. From the Academy.

December 4th.

Bulletin de la Société Imperiale des Naturalistes de Moscou. 1853, Nos. 3, 4; 1854, No. 1. From the Society.

Annales des Sciences, &c. publiés par la Société Imperiale d'Agriculture, &c. de Lyon. 2d series, tome 6, 1854. From the Society.

Memoires de l'Acad. Imperiale des Sciences, &c. de Lyon. Classe des Lettres, nouv. serie, tome 3; Classe des Sciences, tome 3, 4. 8vo. From the Academy.

Jahrbuch der K. K. Geologischen Reichsanstalt. 1854, No. 4. From the Institute.

Verslagen en Mededeelingen der k. Akad. der Wetenschappen. Deel 2, stuck 2: deel 3, st. 2, 3. From the Academy.

Catalogus der Boekerij van de k Akad. van Wetenschappen te Amsterdam, 1855. From the same.

Verhandelingen der k. Akad. van Wetenschappen, Amsterdam. Deel 2, 4to. From the same.

Verhandelingen des Naturhistorischen Vereins der preussischen Rheinlande und Westphalens. Herausg von Prof. Dr. Budge. 1855, No. 2. From the Association.

Sitzungsberichte der niederrheinischen Gesellschaft für Natur und Heilkunde zu Bonn, 1854. From the Society.

Bulletin de la Société des Sciences Naturelles de Neuchatel, tome 3. From the Society.

Geologische Uebersicht der Bergbaue der Österreichischen Monarchie. Von Fr. von Hauer und Dr. Foetterle. From M. von Hauer.

Darstellung der Flora des Hainichen-Ebersdorfer und des Flöeharr Kohlenbassins. Gekrönte Preisschrift von Hanns Bruno Geinitz. 8vo. and Atlas folio. From the "Jablonowskischen Gesellschaft zu Leipzig."

Della Elettricita degli Stami e Pistilli della Piante esplorata all' Atto della fecondazione, &c. Dell' Ab. Francesco Cav. Zantedeschi. From the Author, through Mr. George Ord.

Nuovi esperimenti risguardanti l'origine dell' Elettricita Atmosferica, &c. di Zantedeschi. From the same.

Notice Geognostique sur les Roches du Bassin de l'Adour. Par le Dr. Grateloup. From the Author.

Charleston Medical Journal and Review for November, 1855. From the Editors.

Virginia Medical and Surgical Journal for Nov., 1855. From the Editors.

Reply to Dr. Bachman's Review of Agassiz's Natural Provinces. By J. C. Nott, M. D. From the Author.

A collection of lithographs by the late Alexander Lesueur, intended to illustrate a proposed work on the Mississippi and its tributaries. From M. Edouard Quesnet of Havre, through Mr. Ord.

December 11th.

The following were presented by Dr. Wilson on the usual condition :—

Ostéographie ou description iconographique du squelette et du systéme dentaire des cinq classes d'animaux vertébrés recents et fossiles. Par M. H. Ducrotay de Blainville. Texte, 4to. fascic 25. Planches, folio.

The Ichnology of Annandale. By Sir William Jardine. Folio, Part 3.

Mémoires de la Société des Sciences de Bordeaux. Tome 1, part 1, 1851.

Annales des Sciences Naturelles. 4me. serie, tome 3, No. 5.

Histoire Naturelle des Mollusques Terrestres et Fluviatiles de France. Par A. Moquin-Tandon. Liv. 4.

Revue et Magasin de Zoologie, 1855. No. 9.

Bonplandia ; Zeitschrift für die gesammte Botanik, 1855. Nos. 1—18.

Die Natur. Zeitung zur Verbreitung naturwissen. Kenntniss, &c. Band 1, 3, 4 (Nos. 28—43).

Comptes Rendus. Tome 41, Nos. 14, 17.

Palæontographica. Beiträge zur Naturgeschichte der Vorwelt. Herausg. von W. Dunker und H. von Meyer. Band 4, lief. 3.

Synopsis of the classification of the British Palæozoic Rocks. By the Rev. Adam Sedgwick and F. McCoy. 3d fasciculus.

Philosophical Transactions of the Royal Society of London. 1844, part 1, 1850, part 2, 4to.

Transactions of the Royal Society of Edinburgh. Vol. 20, part 3. 4to.

History of British Fossil Reptiles. By Richard Owen. Part 6. 4to.

Quarterly Journal of Microscopical Science, No. 13. October, 1855.

Annals and Magazine of Natural History, for Nov., 1855.

London, Edinburgh and Dublin Philosophical Magazine, for Nov., 1855.

London Athenæum, for October, 1855.

Journal of the Franklin Institute, for Nov., 1855.

Ueber die Natur der Kieselhölzer. Von E. E. Schmid, Dr., und M. J. Schleiden, Dr.

Beiträge zur Geologie von Australien von L. Leichhardt, herausg. von Prof. H. Girard.

Reports of the British Association for the advancement of Science. 1852 and 1853.